Hearst Forest
Independent Forest Audit
April 1, 2002 – March 31, 2007

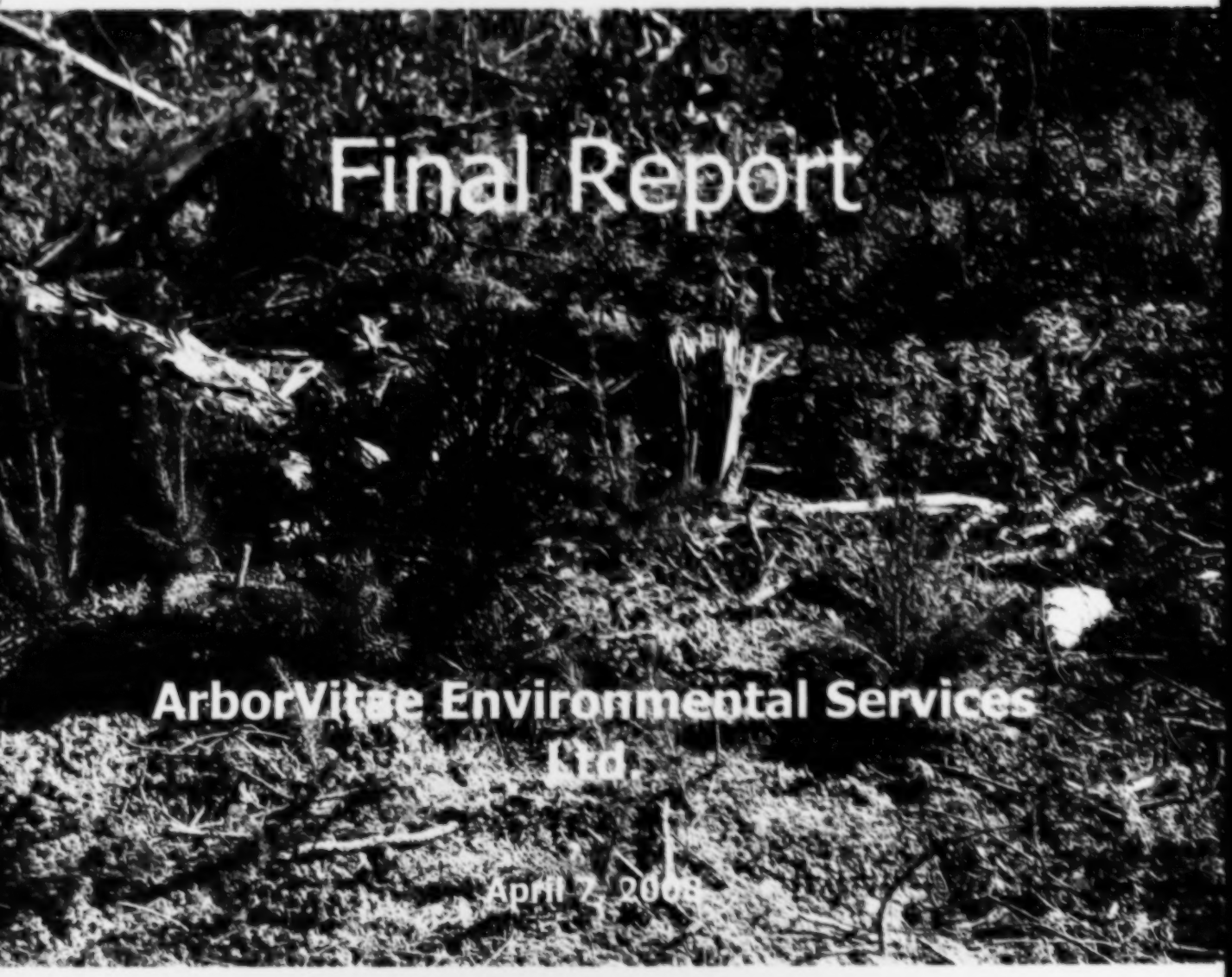

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Table of Contents

1 EXECUTIVE SUMMARY 1

2 INTRODUCTION 4

2.1 AUDIT PROCESS 6
2.1.1 Purpose and overview of the process 6
2.1.2 Process 6
2.2 FOREST MANAGEMENT CONTEXT 10
2.2.1 Location of the Management Unit 10
2.2.2 Description of the Forest 10
2.2.3 Relevant Forest Management Issues 13

3 SUMMARY OF AUDIT FINDINGS 15

3.1 COMMITMENT 15
3.2 PUBLIC PARTICIPATION 15
3.2.1 Local Citizens Committee 15
3.2.2 FMP Standard Public Consultation Process 18
3.2.3 Native People's Consultation 18
3.2.4 Annual Work Schedule Public Inspection 20
3.3 FOREST MANAGEMENT PLANNING 21
3.3.1 Planning Team Activities 21
3.3.2 Resource Stewardship Agreements 25
3.3.3 Sources of Direction 27
3.3.4 Plan Introduction 27
3.3.5 Management Unit Description 27
3.3.6 Objectives and Strategies 34
3.3.7 Operational Planning 35
3.3.8 Plan Review and Approval 42
3.3.9 Plan Amendments 46
3.3.10 Contingency Plans 48
3.3.11 Annual Work Schedules 48
3.4 PLAN IMPLEMENTATION 50
3.4.1 Areas of Concern 50
3.4.2 Harvest 51
3.4.3 Renewal 56
3.4.4 Tending and Protection 60
3.4.5 Renewal Support 61
3.4.6 Access 62
3.4.7 Landbase Management 63
3.5 SYSTEM SUPPORT 65
3.5.1 Human Resources 65
3.5.2 Documentation and Quality Control 66
3.6 MONITORING 67
3.6.1 General Monitoring 67
3.6.2 Annual Reports 71
3.6.3 Report of Past Forest Operations/ Y10AR 72
3.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES AND FOREST SUSTAINABILITY 73

3.7.1 Achievement of Management Objectives *73*
3.7.2 Review of the RPFO Discussion of Sustainability *83*
3.7.3 Review of Comparison and Trend Analysis of Planned versus Actual Forest Operations *83*
3.7.4 Conclusions Regarding Sustainability *86*
3.8 CONTRACTUAL OBLIGATIONS 88
3.8.1 Payment of Crown Timber Charges *88*
3.8.2 Forestry Renewal Trust *88*
3.8.3 Forestry Futures Trust *89*
3.8.4 Specified Procedures Field Assessment *89*
3.8.5 Wood Supply Commitments *90*
3.8.6 Monitoring Obligations *92*
3.8.7 Treatment of X, Y, and Z Lands *93*
3.8.8 Previous Independent Forest Audit *93*
3.8.9 Mining Claims *98*
3.8.10 Licence Conditions *98*
3.8.11 Licence Extension *98*

4 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS 100

List of Tables

Table 1. Sampling intensity of the audit. *8*
Table 2. Land area in the Hearst Forest by ownership and type (ha). *11*
Table 3. Planned vs. actual schedule for development of the 2007 FMP. *43*
Table 4. Summary of AWS submission and approval timelines. *49*
Table 5. Silvicultural accomplishments for the 2002 FMP. *57*
Table 6. Tree planting statistics. *58*
Table 7. Summary of compliance monitoring *69*
Table 8. Summary of AR Submission, Review and Approval *72*
Table 9. Assessment of the Achievement of the Objectives of the 2002 FMP. *75*
Table 10. Review of the recommendations made in the 2002 IFA. *93*
Table 11. Suggestions and Recommendations from this Audit. *102*

List of Figures

Figure 1. Map showing sites selected for field inspection. *9*
Figure 2. Location of the Hearst Forest. *9*
Figure 3. Forest units of the Hearst Forest and their age-class structure *12*
Figure 4. Osprey nest discovered during operations in Acres Township. *33*
Figure 5. Commercial thinning operation on the Hearst Forest. *38*
Figure 6. Reasons for amendments to the 2002 FMP. *48*
Figure 7. Actual depletion area and volume as percentages of planned levels. *52*
Figure 8. Planned and actual harvest volume by species in the 2002 FMP *53*
Figure 9. A former mixedwood waiting for a second pass harvest. *55*
Figure 10. Harvested poplar from which veneer has been taken. *55*
Figure 11. Natural Regeneration site in need of tending. *62*
Figure 12. Wide road right-of-way created by road construction practices. *64*
Figure 13. Unpiled conifer slash along a winter road. *64*

List of Appendices

Appendix A. Forest Manager's Report
Appendix B. Audit Team Members and Qualifications
Appendix C. Independent Forest Audit Guiding Principles
Appendix D. List of Acronyms
Appendix E. Input from Parties

1 EXECUTIVE SUMMARY

ArborVitae Environmental Services Ltd. performed an Independent Forest Audit (IFA) of the management of the Hearst Forest for the period April 1, 2002 to March 31, 2007. The audit was undertaken using the Independent Forest Audit Process and Protocol (IFAPP), prepared by the Ontario Ministry of Natural Resources (MNR). The IFA examined compliance with the Crown Forest Sustainability Act, the terms of relevant licences, especially Sustainable Forest Licence #550053 held by Hearst Forest Management Inc. (the Company), and the management plans in place for the Forest.

In general, this audit found that the Hearst Forest was being managed well. The broad public consultation efforts and interest of the community in the health of the Forest gives the very strong sense that the Forest is an integral part of the community's identity. Management of the Forest was very attuned to the uses and desires of the local community.

This audit makes 24 recommendations (one of which is to extend the licence) and 12 suggestions (Table 11), and identifies several best practices. During the audit we encountered no serious situations which negatively impact the sustainability of the Forest. The most challenging issues for the Forest, as noted throughout this report are the new planning requirements which came into effect with the 2004 FMPM, the nature and utilization of the poplar supply, and planning for woodland caribou.

The 2007 FMP for the Hearst Forest was among the first in the province to be written under the requirements of the 2004 FMPM. As such, there was no previous institutional experience to provide guidance in this requirement. As there are substantial new requirements under the 2004 FMPM, this made the planning experience considerably more challenging than was the case for the development of the previous plan.

The Forest is capable of growing very high-quality poplar but there are several factors which affect its management. These factors relate to inventory uncertainties, poor markets for oriented strand board, the isolation of the Hearst Forest relative to processing facilities, and the government-mandated commitments for poplar contained in the SFL agreement.

Woodland Caribou are a threatened species in Ontario. With this classification comes a legal and societal obligation to manage for the species' well being. Caribou numbers in the Forest are low, and they are very sensitive to interactions with people. This creates a difficult environment in which to manage caribou and to see a positive response from management.

The distribution of recommendations relative to the audit principles provides broad insight into the aspects of forest management most in need of attention. Of the 24 recommendations identified in this audit about half are related to forest management planning while only five are related to plan implementation. This reflects the Audit Team's impression that forest management operations are generally well done, while some planning aspects of management are in need of attention.

As noted earlier, the Audit Team has a favourable impression of the management of the Forest. The findings do not identify any egregious issues related to forest management, rather we believe they identify ways of making a good management regime better. The Audit Team draws attention to the highlights of the Forests' management:

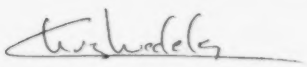
- The LCC has been effective in providing input into management of the Forest;
- The broad public consultation which was undertaken to solicit input into planning was exemplary;
- The Company and MNR have been successful in facilitating the involvement and economic interests of Constance Lake First Nation;
- A generally effective silviculture program has been implemented;
- There is an excellent working rapport between the company and the MNR; and
- There is a very high level of dedication on the part of the company employees, all of whom expressed sincere desires to maintain a productive and healthy forest.

The good working rapport not only facilitates good forest management, but it is also a product of good forest management. The good rapport also emanates through the community. The response to our attempts to solicit public input were mostly positive – this is not usually the case. The Company's efforts at soliciting public input, and the open manner in which the LCC functions are two indications that the Hearst Forest is very much a community's Forest.

As all audits do, this audit found some aspects of forest management in need of improvement; key elements are summarized below.

- **Values** – Corporate MNR needs to invest in better collection of values information to meet the corporation's stewardship responsibilities;
- **Forest Benchmarks** – The characterization of the historic should be improved in subsequent efforts to establish natural benchmarks;
- **Maintaining the landbase** – The company need to investigate ways to reduce loss of productive forest area due to road construction and slash accumulation;
- **Forest Management Planning** – Several issues were identified associated with development of the FMP, Annual Reports and Annual Work Schedules. The most significant is that some documents were made available for public review prior to the final versions being prepared.
- **Corporate MNR Impediments** – Corporate MNR needs to address some aspects of its management program to reduce impediments to appropriate forest management; these include providing appropriately-timed adequate funding for collection of values; removing impediments to the use of commercial thinning as a silvicultural tool; and releasing the final version of the Caribou Recovery Strategy.

In general this audit finds that the company performed well over the audit period. The level of non-compliances related to field operations is low and well within the bounds normally considered to be acceptable. The silviculture program is effective and has been well-implemented and the company complied with the contractual obligations identified in the Sustainable Forest Licence. The audit finds that the forest has been managed sustainably and recommends extension of the licence for a further five-year period.



Chris Wedeles, Lead Auditor

2 INTRODUCTION

This document presents the results of the Independent Forest Audit (IFA) of the Hearst Forest, covering activities undertaken during the period April 1, 2002 to March 31, 2007. The audit was undertaken by a team of professionals, following the direction of the Ontario Ministry of Natural Resources' (MNR) Independent Forest Audit Process and Protocol[1] (IFAPP).

The Hearst Forest is presently managed by Hearst Forest Management Inc. (HFMI) under a Forest Management Plan (FMP) that came into effect on April 1, 2007. During the term of the audit, HFMI managed the Forest on behalf of two shareholders: Tembec Industries Inc. and Lecours Lumber Co. Limited. Although the term of this audit overlaps completely with the term of the previous (i.e. 2002) FMP, both plans were included in the domain of this audit. The activities conducted under the 2002 plan were reviewed in this audit as was its content. No forest management operations conducted under the 2007 were included in this audit (as the plan didn't come into effect until after the period covered by the audit). However, the processes of preparing and writing the 2007 plan occurred during the audit period and so are included in the activities being reviewed. Also, much of the content is within the domain of the audit. Because the 2007 FMP is a more current and relevant document than is the 2002 plan (in terms of identifying future management for the Forest), emphasis was put on reviewing the management direction outlined in the 2007 plan.

This audit reviews the performance of HFMI in managing the Forest following the direction in the 2002 FMP and in leading the development and writing of the 2007 FMP. The audit also reviews and assesses the activities of the Ontario Ministry of Natural Resources (MNR) related to management of the Hearst Forest. The MNR is the provincial Ministry with the primary responsibility for managing the province's Crown forests and, as such, it oversees and regulates planning and operations on the Forest. The MNR also has management responsibility for fisheries and wildlife. The MNR's involvement in management of the Forest occurs primarily through its Hearst District Office.

The Crown Forest Sustainability Act (CFSA) empowers the Minister of Natural Resources to manage Crown forests in Ontario and also provides the legislative basis for the Independent Forest Audits. The scope and process of an IFA is set out in the IFAPP. The IFAPP, which is reviewed and updated annually, contains more than 400 individual audit procedures, most of which apply to this IFA. The IFAPP provides very detailed instructions on how audits are to be conducted and precisely what aspects of forest management are to be reviewed and assessed. This audit was carried out in a manner consistent with the directions set out in the IFAPP.

The results of each audit procedure are not reported separately in this report. Rather, they have provided the basis for the information in the following sections (primarily Section 3). *The reader should assume that if a topic related to any procedure identified in the IFAPP is not discussed in the body of this report, that it was assessed and found to be in compliance with the requirements identified in the IFAPP.*

[1] Ontario Ministry of Natural Resources. 2007. Independent Forest Audit Process and Protocol. Queen's Printer for Ontario.

In the following sections, many noteworthy aspects of the management of the Forest are discussed. These discussions are followed in some instances by recommendations or suggestions. The IFAPP gives explicit definitions of these terms:

Recommendation - "sets out a high level directional approach to addressing a non-conformance. In most cases, recommendations follow from the observation of material non-conformances. In some instances, however, auditors may develop recommendations to address situations where they perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed."

Suggestion - "value-added advice which reinforces adaptive resource management and contributes to continuous improvement."

Of these two types of findings, recommendations are the more serious. Both recommendations and suggestions can be directed towards the Company and/or the Ministry of Natural Resources. Finally, if the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP provides the following definition:

Best practices – "practices so identified should be 'exceptional', not situations in which forest management is simply meeting a good forest management standard. Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices."

The Audit Team found situations which should be corrected by the tenure holder acting in concert with district or regional MNR offices. Other situations which we believe need corrective action, however, are more appropriately addressed by the corporate sections of MNR (e.g. Forest Management Branch). These situations involve issues related to the general framework of forest management in Ontario, and although they have been manifested locally (hence, they surfaced in this audit), their resolution lies not in the field offices of MNR, but in the Main Office, Forest Management Branch, or other corporate parts of MNR. Issues which we believe should be addressed by the field units of MNR (i.e. District or Regional Offices) are addressed in recommendations or suggestions which simply identify "MNR". Recommendations or suggestions which we believe should be addressed by central branches or sections of MNR identify "corporate MNR" as having primary responsibility.

The team which conducted this audit consisted of five individuals, all experienced forest auditors, and all specialists in forest management. Appendix B provides details of their qualifications, roles and responsibilities.

Forest management in Ontario (and elsewhere) uses a variety of technical terms. We have tried to explain terms as they are used in this document, but readers unfamiliar with the forest management planning process in Ontario are referred to the Ministry's internet site (http://ontariosforests.mnr.gov.on.ca/fmpoverview.cfm) for further explanations. In addition Appendix D lists the acronyms used in this report.

If after consulting the document, readers remain uncertain regarding any issue discussed in this report, they are encouraged to contact the Ministry of Natural Resources, Forest Management Branch[2] for fuller explanations.

2.1 AUDIT PROCESS

2.1.1 Purpose and overview of the process

The CFSA directs the Minister of Natural Resources to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit fulfills this mandate, as well as complying with the direction to the Ministry laid out in Terms and Conditions #86 and 87 and Appendix 25 of the 1994 Class EA decision to "undertake operational audits, through the appointment of suitably qualified independent Audit Teams, which will include an assessment of compliance with the timber management planning process, approved Timber Management Plans, implementation manuals, and provincial policies, procedures, and legislation". The Declaration Order[3] confirmed the importance of the IFAs, replacing the 1994 Class EA Terms and Conditions #86 & 87 with Condition #28, which imposed some additional conditions on MNR. One of these conditions was for MNR to propose a regulation under the CFSA regarding the conduct of IFA's; MNR duly proposed a regulation which came into force on June 10, 2004 as Ontario Regulation 160/04 under the CFSA.

As noted earlier, the scope and process of an IFA is set out in the Independent Forest Audit Process and Protocol (IFAPP), which is maintained by the MNR. The IFAPP states that the purpose of the audits is to:

- "assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [Crown Forest Sustainability] Act;
- assess to what extent forest management planning activities comply with the Act and with the forest management plans, the manuals approved under the Act, and the applicable guides;
- assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;
- compare the forest management activities carried out with those that were planned;
- assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and
- review and assess a licensee's compliance with the terms and conditions of the forest resources licence."

2.1.2 Process

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. There are eight

[2] Ministry of Natural Forest Management Branch, Roberta Bondar Place, Suite 400 70 Foster Drive, Sault Ste. Marie, ON, P6A 6V5.
[3] Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

principles within the audit protocol (reproduced in Appendix C). Each principle contains a set of criteria, which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees' compliance and effectiveness.

The audit commenced with the preparation of a detailed audit plan[4], which described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held between representatives of the Audit Team, HFMI, the Ministry of Natural Resources and the Local Citizens' Committee (LCC). The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and to select the sites to be inspected in the field during the audit.

The focus of the audit was an intensive six-day site visit, which included the following:

- review of relevant documents at the offices of the Company and District MNR in Hearst;
- interviews with Company staff, shareholders, commitment holders, MNR personnel, First Nations individuals, members of the LCC, and members of the public; and
- field inspection of many representative sites where forest management activities were undertaken during the term covered by the audit, examining:
  - results of harvesting and silvicultural operations in a range of forest types on different site types;
  - results of practices intended to safeguard wildlife, aquatic, and tourism values; and
  - results of road construction, maintenance, and abandonment practices.

The Audit Team visited a variety of sites throughout the Forest where activities had been undertaken during the audit period (see Figure 1). The sites were selected by the Audit Team at a one-half day meeting following the pre-audit meeting, with some minor adjustments afterwards largely dictated by access.

Table 1 shows the total amount of each key activity and the sample size and sampling intensity for key operations. The IFAPP required the Audit Team to sample at least 10% of the area treated during the audit period for each activity, such as harvesting, site preparation, and regeneration. This audit exceeded the target for all activities.

The auditors were required to verify in the field at least 10% of the areas reviewed in specified procedures undertaken by KPMG. This review was undertaken for the 2005-06 fiscal year. We verified in the field 24.3% (4,563 of 18,740 ha) of the silvicultural activities and free-to-grow surveys undertaken by HFMI in the year 2005/06.

[4] ArborVitae Environmental Services Ltd. Hearst Forest Independent Forest Audit Plan, June 20, 2007.

Table 1. Sampling intensity of the audit.

Management Activity	Total in Audit Period *	Total Sampled	Sample Intensity %
Harvest (ha)	38,755	6,933	18.0
Site Preparation (ha)	10,236	1,851	18.1
Natural Regeneration (ha)	20,877	6,232	29.8
Artificial Regeneration (ha)	18,642	2,654	14.2
Tending (ha) **	13,518	1,624	12.0
Free-to-grow assessment (ha)	46,093	5,064	10.9
Road construction (km) ***	112.9	22	19.4
Water Crossings ****	Approx. 80	Approx. 20	25.0
Areas of Concern*****	22	13	59

* Compiled harvest and silviculture data for 2006/07 were not available at the time of the audit and so estimated values, based on the Company's assessment, were used to develop the total area of harvest and silviculture operations and free-to-grow assessments for the audit period.
** The figure for tending includes manual and chemical cleaning, commercial- and pre-commercial thinning.
*** Figures are for primary and secondary road construction planned and undertaken during the audit period. Tertiary road construction is not reported.
**** Includes bridges and culverts (not including cross-drainage culverts)
***** The 2002 FMP identified 23 different types of AOCs, and several hundred individual AOCs were implemented during the audit period. The audit inspected many individual AOCS consisting of 13 of the 23 different types.

Table 1 is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although roughly 30 stops were planned for the field inspection portion of the audit, several were added *ad hoc* during the audit. In addition, more than one aspect of forest management was inspected at most stops. For example, at stops where harvesting had taken place, harvest practices, compliance issues, road construction, Area of Concern (AOC) protection, site preparation, and regeneration activities may all have been inspected. In addition, many of the sites inspected were very large, necessitating several inspections at different places within the same site. Finally, although stand and treatment areas are shown in Table 1, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvesting systems, harvest operators, season of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were planted and tended, and those for which natural regeneration was planned.

In addition to reviewing field operations the audit examined many other aspects of management, including:

- all aspects of planning;
- management of, and contributions to the Forest Renewal Trust Fund;
- public participation;
- involvement of First Nations;
- human resources and training; and
- monitoring of management activities.

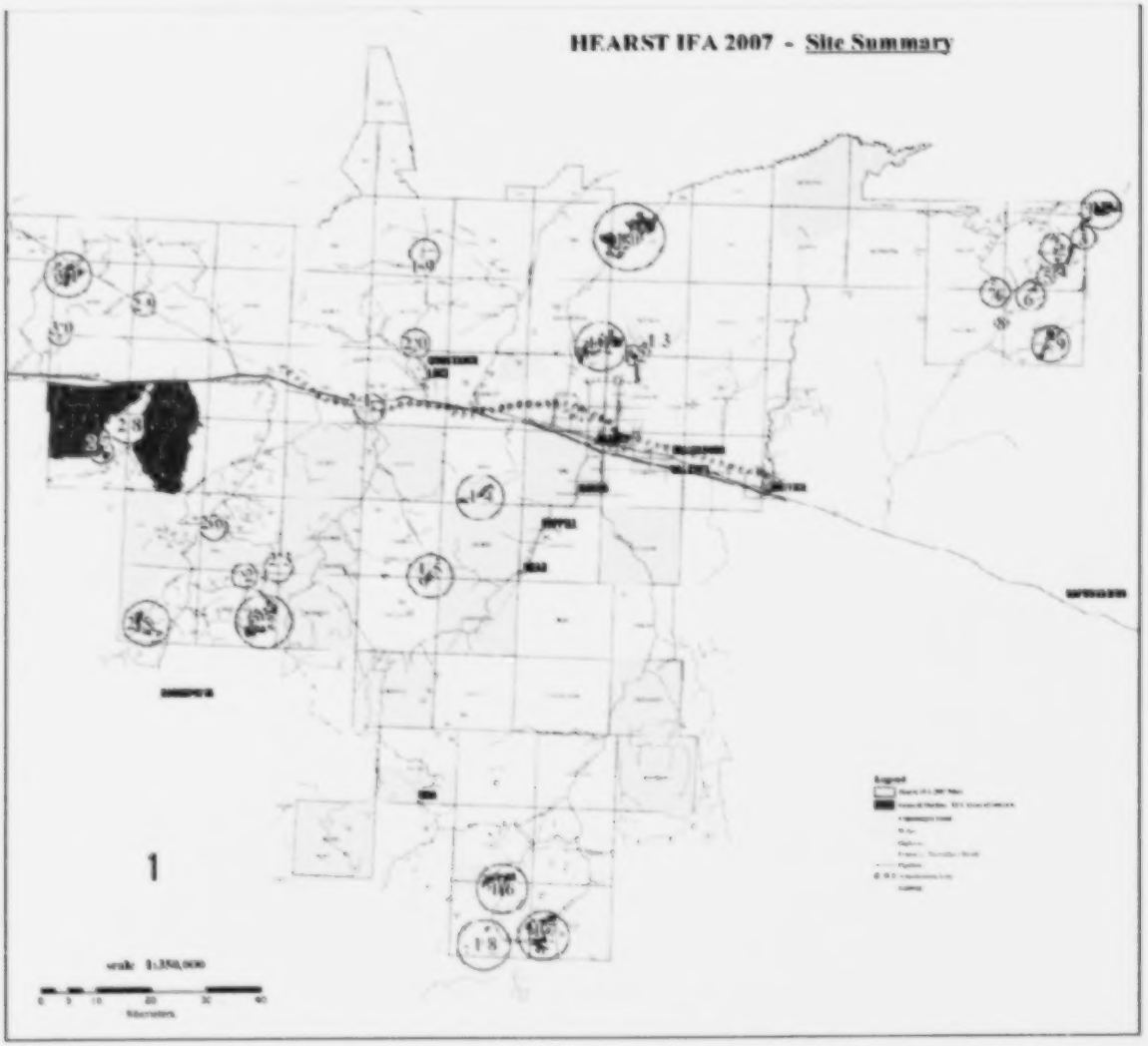


Figure 1. Map showing sites selected for field inspection.

2.2 FOREST MANAGEMENT CONTEXT

2.2.1 *Location of the Management Unit*

The Hearst Forest is located in north-central Ontario (Figure 2). The town of Hearst, located in the central portion of the Forest is the main population centre. The Forest is bisected by Highway 11, and Highway 631 runs south from the central portion of the Forest to Hornepayne and White River. The Forest is approximately 95 km west of Kapuskasing, 260 km northwest of Timmins, and 210 km east of Longlac.

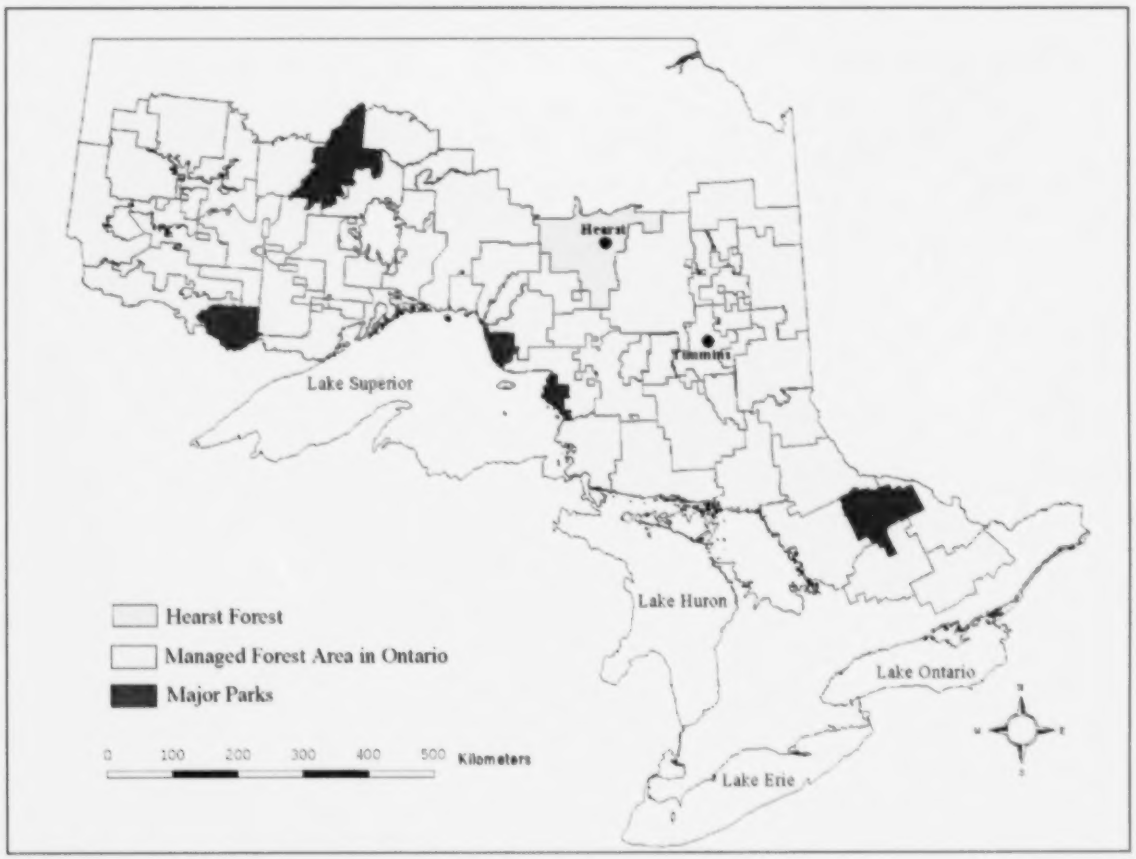


Figure 2. Location of the Hearst Forest.

2.2.2 *Description of the Forest*

This section of the report, and the following section on forest management issues, are primarily based on information contained in the 2007 FMP.

The Hearst Forest encompasses approximately 1.52 million ha. Table 2 shows the extent of various components of the landbase by ownership class. The Forest has approximately 1.15 million ha of Crown managed forested land, of which approximately 970,000, or 84% is productive. There is a significant amount of private land- almost

290,000 ha, within the Forest's bounds; these lands are not managed by HFMI or the MNR. In addition, there are almost 78,000 ha of parks and protected areas in the Forest (approx. 5% of its total area).

Table 2. Land area in the Hearst Forest by ownership and type (ha).

Landbase Component	TOTAL	Crown Managed	Parks and Protected Areas	Private
Water	57,758	34,267	7,732	15,173
Non-forest	19,402	7,838	106	11,149
Non-productive Forest	171,734	141,456	9,812	20,250
Protection Forest	61,576	48,747	3,407	9,422
Production Forest	1,211,490	921,852	56,399	231,020
TOTAL	1,521,960	1,154,160	77,456	287,014

(Source: FMP-1, 2007 FMP)

The area of land in the parks and protected areas includes provincial parks and areas that have a legal status that precludes them from being available for timber harvesting, such as conservation reserves. Non-forest lands include agricultural, open lands, and unclassified areas. Non-productive forest includes areas incapable of producing commercially-useful trees. These lands amount to more than 11% of the total Forest area; this reflects the Clay-belt influence in the Forest. Protection forest land includes treed areas on sensitive soils and islands. Production forest land is capable of growing commercial trees and capable of supporting forest management.[5]

The 2007 FMP identifies that the Forest is divided into two main regions of soil classification and geologic differentiation. The north and central parts of the Forest are part of the Clay Belt – the expansive region in northeastern Ontario stretching from the Quebec border to the Hearst Forest. The Clay Belt is characterized by broad areas of poorly drained organic soils mixed with areas of clay-dominated soils. The remaining areas of the Forest have a wide range of soil types, ranging from clays to loams to sands, resulting from a range of glacial deposition processes.

The main tree species on the Hearst Forest is black spruce. Sixty-seven percent of the landbase is composed of forest units in which black spruce is a major component. Black spruce dominated forest units are predominant in the clay-belt section of the Forest. The other forest units have greater representation on the non-clay-belt portion of the Forest, but black spruce remains an important species there too. Figure 3 shows the age-class structure and forest-unit composition of the Forest. Although eleven forest units occur on the Forest, the dominant four (SB1, SB3, SP1 – all of which have strong black spruce components, and MW2 – a mixedwood unit often consisting predominantly of aspen mixed with spruce), comprise 75% of the forested landbase. In addition, the bi-modal age-class distribution of the spruce forest units is apparent. Young and relatively old areas of these forest units are much more common than are those in mid-ages (20-80)

[5] Definitions in this paragraph are taken from those provided by the (2004) Forest Management Planning Manual.

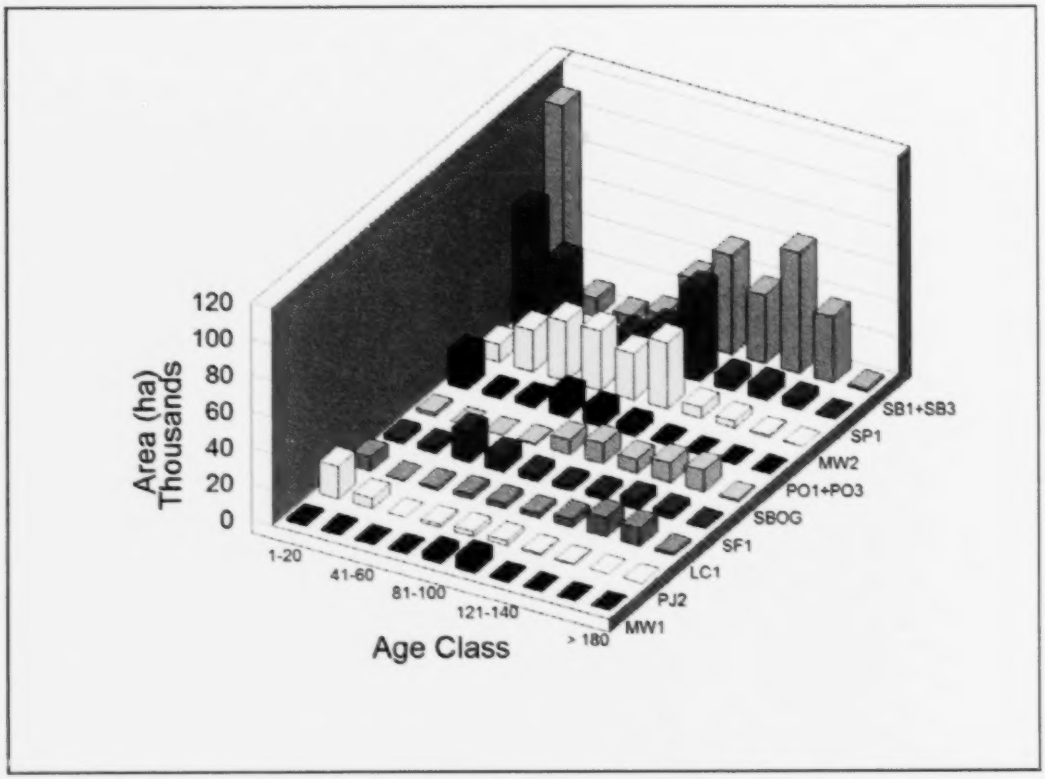


Figure 3. Forest Units of the Hearst Forest and their age-class structure.

As described in more detail in Section 3.2.3, there are two First Nations with interest in the Forest. The community of Constance Lake is located approximately 40 km west of Hearst. It is home to approximately 700 people, most of whom are members of the Constance Lake First Nation. One of the harvesting operations on the Forest is owned and operated by members of the First Nation. The Hornepayne First Nation has been less involved in forest-related matters.

The Hearst Forest is of major economic importance in the region. As outlined in the 2007 FMP, the forest industry provides almost one-third of local employment in Hearst and the nearby communities of Mattice/Val Cote, Constance Lake and Longlac. The 2007 FMP notes that, based on Statistics-Canada's dependency ratio, Hearst is about twenty times more dependent on the forest industry than is the province overall. The 2007 FMP identifies 15 facilities throughout northeastern and north-central Ontario that receive timber, sawmill chips, sawdust or shavings from the Hearst Forest. Given the on-going turbulence in the forest industry, this number may have changed somewhat, but it still provides an indication of the industrial importance of the fibre from the Forest.

There are four provincial parks in the Forest. Fushimi Lake Park, which is classed as a recreation park, is located just north of Hearst and is a popular fishing destination. A portion of the Missinaibi Waterway Park is in the Hearst Forest; this park provides canoeing and wilderness opportunities. Nagagamisis Park, which is a classed as a Natural Environment Park is located north of Hornepayne, and is popular with anglers

and as a starting point for canoe trips on the Nagagami and Shekak Rivers. Pichogen River Park is an unstaffed Nature Reserve park in the Chapleau Crown Game Preserve. There are two conservation reserves on the forest; the Ste Thérèse Ground Moraine Conservation Reserve and the Dube Creek Iceberg Keel Marks Conservation Reserve.

The 2007 FMP reports that there are twelve tourist outfitters operating in and near the Hearst Forest. They offer a mix of road-based and remote tourism experiences focusing on hunting and fishing. Tourist camps are located on approximately 22 lakes and rivers across the Hearst Forest.

The Forest provides a great deal of recreation for area residents, many of whom hunt and fish. There are also snowmobiling, and cross-country ski clubs in the area, and residents also use the Forest for camping, ATVing, and berry-picking.

The Forest supports the normal range of boreal species, including predators and furbearers such as black bear, wolves, lynx, beaver and marten. The boreal forest is extremely important for the continent's songbird populations, providing habitat for densities in the summertime unreached anywhere else on the continent[6]. Although no definitive work has been done on the Hearst Forest, it is likely that it supports over 100 different species[7]. The Forest also supports three species of ungulates: moose, woodland caribou, and white-tailed deer. Moose are relatively abundant on the Forest, whereas caribou are extremely rare. The 2007 FMP estimates that there are 20 or fewer caribou on the Forest. Woodland caribou are recognized as a threatened species by both the provincial and federal governments. The Hearst Forest is close to the southern boundary of woodland caribou occupancy in the province, although historically their range extended much further south. White-tailed deer are expanding their range northward in Ontario and are reported in the Hearst Forest.

2.2.3 Relevant Forest Management Issues

There are several issues of considerable prominence in management of the Hearst Forest. These issues present a challenge for the company and the MNR. They are being addressed by both organizations and have been considered in detail in this audit.

Planning Challenges

The 2007 FMP for the Hearst Forest was among the first in the province to be written under the requirements of the 2004 FMPM. As such, there was no previous institutional experience to provide guidance in developing the plan according to the new requirements. There are substantial new requirements under the 2004 FMPM and this made the planning experience considerably more challenging than was the case for the development of the previous plan. Producing the FMP took considerable collaborative efforts on the part of the Company and local MNR staff. However, there remain significant planning challenges which will be important throughout the implementation of the 2007 FMP, as annual planning is conducted, and as planning efforts increase towards the end of the present five-year period. These challenges include:

[6] Bird Studies Canada. 2005. North America's Bird Nursery: The Boreal Forest and Its Global Responsibility Toward Sustaining Bird Populations. Report Commissioned by the Boreal Songbird Initiative and the Canadian Boreal Initiative. 16 p.
[7] Ontario Breeding Bird Atlas: http://www.birdsontario.org/atlas/atlasmain.html

- The Forest Resource Inventory (FRI) is out of date, considerable effort will be required to incorporate the new inventory into on-going management of the Forest;
- Government funding for collection of values is inadequate and is provided at times not well suited to management of values over the course of plan implementation; and
- Maintaining the effectiveness of the LCC in assisting with aspects of management planning while implementing its new Terms of Reference.

Poplar Management

Perhaps the most challenging issue on the Hearst Forest centres on poplar management. The Forest is capable of producing high quality poplar for use in oriented strand board (OSB) and as veneer, however the poplar on the Forest is not being used to anywhere near its potential. The actual poplar harvest over the plan term is significantly less than that which was planned; in the 2002 FMP, the planned poplar volume was approximately 222,000 m^3/yr, but an average of only 60,000 m^3/year was attained. The reasons for this underachievement are complex and relate to poor markets for OSB, the isolation of the Hearst Forest relative to processing facilities, the questionable forest inventory, and the government-mandated commitments for poplar contained in the SFL agreement. Much of the poplar on the Forest comes from mixedwood stands. These stands are harvested primarily using a two-pass system in which the conifer is harvested first in one operation, and subsequent to that poplar is harvested if sufficient concentrations and markets exist to make the harvest economically viable. The use of a two-pass system which may lead to poor utilization of poplar can create silvicultural challenges for stand regeneration. These issues are discussed in several places in this report, including Sections 3.3.7, 3.4.2, 3.4.4, and 3.8.5.

Caribou

As noted above, Woodland Caribou is a threatened species in Canada. There is a small population of Caribou on the Forest and special management considerations and actions are needed to foster their continued existence. As described in Section 3.3.5, caribou are known to be extremely sensitive to human activities in forests, and their range has declined very considerably in Canada over the last decades. The 2007 FMP identifies several management actions directed at caribou; the most significant of which may be the co-ordinated management of caribou habitat on the Hearst Forest with two abutting SFLs. The MNR Regional Director instructed the planning team to consider the habitat needs of caribou in the development of the 2007 FMP, but as of yet the government's Caribou Recovery Strategy, originally presented in draft form in early 2005 has yet to be released. The draft recovery strategy includes aspects covering inventory, monitoring, and reporting; population management; land use planning; and research. Although the efforts directed at caribou habitat management in the 2007 FMP are noteworthy, they could be significantly bolstered if the final strategy was released and the resources to implement it were made available.

All these issues are discussed in this report.

3 SUMMARY OF AUDIT FINDINGS

3.1 COMMITMENT

An assessment of commitment to Sustainable Forest Management (SFM) is based on a review of written statements (*e.g.* policy documents, legislation, regulations, *etc.*) and demonstrable actions of SFM (*e.g.* communication, planning, operations, monitoring, reporting, *etc.*). There are several procedures in the IFAPP to assess commitment of both the MNR as the regulatory agency, and HFMI as the Sustainable Forest License (SFL) holder.

HFMI has a mission statement which has as its prime vision the maintenance of a healthy forest for the benefit of the communities in the Hearst Area. The statement incorporates broad objectives such as ensuring that the Forest is managed sustainably, respecting the interests of all stakeholders, following government regulations, communication with the public, and prudent financial management. HFMI staff are aware of the elements of the mission statement policy and shareholders espoused views of their roles in contributing to management the Forest which were very similar to, and indicated like-mindedness with, HFMI's Forest Policy.

A better indicator of commitment than familiarity with the corporate policy is level of effort and quality of performance of Company staff. In this regard, the Audit Team notes a very high level of dedication on the part of the Company employees, all of whom expressed sincere desires to maintain a productive and healthy forest.

In the case of MNR there are broad and widely-encompassing documents such as the Policy Framework for Sustainable Forests, Beyond 2000, Ontario's Framework of Forest Policy and Authority and the legislation of the Crown Forest Sustainability Act. MNR staff were knowledgeable of their corporate policies and legislation related to SFM. As with HFMI staff, MNR personnel displayed a high level of commitment to management of the Forest.

3.2 PUBLIC PARTICIPATION

3.2.1 Local Citizens Committee

The general manner in which the Local Citizens Committee is structured and functions has not changed since the last IFA. The report of the previous IFA described how the Committee's operation is unique in the province. The Committee operates in a somewhat "free-form" manner. Although there are almost 40 individuals identified on the LCC mailing list and 69 on its e-mailing list, participation in all the Committee's meetings is open to all comers as its operations are not restricted to a core group of members. All the meetings of the Committee are advertised and the local communities' citizens choose to attend according to their interest in the meeting agenda. The LCC operates inclusively in both French and English and works on a consensus basis for making decisions.

The previous IFA identified the LCC and its manner of operations as a Best Management Practice, noting that it was very effective and successful. This audit also

concludes that the LCC has been operating well, with a high degree of public acceptance and reputability.

Although the LCC functioned well during the period covered by this audit, there were some aspects of its operation in need of fine-tuning. Perhaps the most apparent was the fact that the LCC did not have up-to-date Terms of Reference (TOR). The TOR in use by the Committee were those developed when it was originally formed in the early 1990's. They provided somewhat limited direction for the manner in which the Committee functioned, and they lacked many of the specific requirements as identified in the Forest Management Planning Manual (FMPM). Many Committee members were unaware of the existence of the TOR, suggesting that their utility was limited. Although outside the period covered by this audit, we note that new TOR have recently been developed (in the fall of 2007) and appear to meet the needs of the Committee and the requirements of the 2004 FMPM.

As noted above, the Committee's approach of functioning in an inclusive manner is broadly seen as being one of its strengths, and an asset which should be maintained. There are also advantages to having a "core" membership, consistent with the manner in which most other committees operate. Through the course of the audit period the Committee functioned largely without such a core. Traditional functions, such as chair, vice-chair, secretary, and membership on sub-committees could most logically be filled with individuals who form the core. The new TOR identify the requirement for the Committee to have several executive positions which would meet this need. It should be very possible, for the Committee to maintain its inclusive approach while still working with a core membership.

A review of LCC minutes and participants showed that participation in the Committee was skewed towards those with interests in hunting, fishing and other forms of outdoor recreation, and the forest industry. There are members on the LCC who "wear more than one hat" and therefore represent more than one interest and help bring balance to the Committee. In small communities it is often difficult to achieve balanced representation simply because of the small population base. The new TOR identify the interests which should be represented on the Committee and require an annual review of membership to ensure that it contains a range and balance of interests.

One required aspect of LCC operations relates to the categorization of amendments to Forest Management Plans. The FMPM (Section C-2.2.1) states that "The MNR District Manager, in consultation with the local citizen's committee, will decide if preparation of the proposed amendment should proceed, and the appropriate categorization of the amendment as administrative, minor or major." LCC members reported that they were provided with opportunities to participate in amendment classification, but found the process very bureaucratic and somewhat frustrating. Members were put off by the fact that amendments were often put to them in batches and that by the time they had input the categorizations were fait accomplis.

Most amendments to Forest Management Plans deal with administrative matters, (as noted in Section 3.3.9, all of the amendments for the 2002 FMP were classified as administrative) and are somewhat bureaucratic in nature. The manner in which the LCC was provided with opportunities to review amendments, although approved at a 1997 LCC meeting, is not entirely consistent with the requirements of the FMPM which note that categorization should precede implementation. However the schedule of LCC

meetings can often not accommodate the need to respond quickly to some amendment requests and so the logic of the approach is apparent. The new TOR identifies the types issues addressed in amendments which can be "pre-approved" (e.g. correcting mapping errors, small salvage operations); meaning that they can be processed without recommendation from the LCC. The TOR require that the LCC be provided with a list of pre-approved amendments at each regular meeting. So far the implementation of this approach is proving successful.

Although the process for amendment classification is expeditious and logical, there is a danger that a pre-approved amendment may be of concern to the LCC or some of its members and that, by using the pre-approval process, opportunity for appropriate *a priori* discussion is foregone. This concern could be ameliorated if one (or more) LCC member(s) participated in the pre-approval process. In this manner the entire LCC need not be encumbered and the process could remain expeditious but LCC interests and concerns could be represented in the pre-approval process. Furthermore, a mechanism such as this would bring the manner in which amendments were categorized in line with the process identified in the FMPM.

Suggestion # 1

The LCC should consider whether it would like to play a role in the amendment pre-approval process by having one or more members participate in the screening of amendments categorized as administrative.

Opportunities for Public Input

The number of official LCC meetings varied considerably from year-to-year over the audit period, with a high of six meetings on two occasions, and a low of one. In 2005 there was only one official LCC meeting; this is notable because during that year the planning for the 2007 plan was well under-way and one would expect that to be a year of high meeting frequency. However, from 2004 to 2006 – the years during which the plan was being prepared, there were a total of 16 additional fora for public input. These included:

- A planning workshop at Constance Lake with the Constance Lake First Nation;
- Field tours, open to the public;
- A sustainable forestry workshop;
- A desired forest and benefits workshop;
- A forest economics workshop.

These fora were jointly sponsored or co-hosted by the MNR, the company, and the LCC. Although not formal LCC meetings, they were very important events in planning for the Forest. They provided citizens with opportunities to participate in forest planning and provided the MNR and company with opportunities to benefit from the input of the broader community beyond the normal constraints and rigour of the official forest management planning process. Provision of these opportunities very much typifies the extent to which the Hearst Forest is broadly considered by the managers (the company and MNR) to be the community's forest.

Best Practice

The Company and the MNR are commended for their broad efforts to encourage and support the participation of members of the local public and stakeholders in forest management planning.

Detailed minutes of the meetings were prepared and included in the supplementary documentation. The Company also maintains a web site and posts public meeting and consultation records on the web site. The audit team observed that the documentation for the 2007 FMP had not been posted, but anticipates that the Company will do shortly.

The low number of meetings in 2005 must be seen in perspective with the high number of other opportunities for public participation. It may be that more LCC meetings should occur, particularly during years leading up to plan approval. The recently-adopted TOR for the LCC identify that there should be eight meetings per year.

Committee Perspectives

All members of the LCC to whom we spoke expressed a high level of satisfaction with the support provided by the MNR. The MNR provides the LCC with strong secretariat services and takes the lead role in producing the excellent records of the meetings and other events. Committee members also expressed satisfaction with the very supportive efforts provided by HFMI.

Although there was a good rapport with the MNR, committee members did express frustration with some aspects of their functioning which are controlled by the MNR. The opinion that the MNR drives the committee's agenda to too-great an extent was expressed with frequency. Similarly there was a desire expressed for the committee to be allowed to venture into non-forestry issues more than it is presently. There was also frustration expressed that the MNR and industry can sometimes dominate the agenda and discussions. To varying degrees, these concerns reflect the committee's enthusiasm to play an important role in managing the Forest. These topics were discussed in the development of the TOR and were incorporated into the LCC's purpose statement.

3.2.2 FMP Standard Public Consultation Process

The FMPM outlines the required timing and distribution of notices for each stage of the FMP process. The Supplementary Documentation of the 2007 FMP provides details related to public consultation that confirm notices were prepared and distributed to the public and First Nations in a timely fashion and through a range of appropriate local media types. Media from all the significant communities in the area of the Forest were used to advertise opportunities for public input. Review of the public notices confirmed that they included all the required information identified in the FMPM.

The MNR public consultation records were well organized and MNR staff responded in timely and considerate manners to public correspondence.

3.2.3 Native People's Consultation

As described earlier, there are two First Nations in proximity to the Hearst Forest. The Hornepayne First Nation did not express significant interest in matters concerning forest

management during the audit period, however the Constance Lake First Nation has a strong history of involvement in forest management.

Exceptional consultation efforts were directed towards the community of Constance Lake, based on their history of interest, to facilitate their involvement in planning and in broader aspects of management of the Forest. The involvement of the Constance Lake First Nation was (and continues to be) greatly assisted by an MNR-funded Native liaison officer based in the community of Constance Lake. The main responsibilities of the position are to serve as a conduit between the community and the MNR, to bring issues of importance to the First Nation to the attention of the MNR and HFMI, and to coordinate community-based information sessions and fora. Having a liaison position based right in the community is an excellent means of ensuring good communication and maintaining a strong rapport between the community, the MNR and HFMI.

Another sign of the strong interest in First Nations involvement in management of the Forest is that there were three representatives of Constance Lake First Nation on the forest management planning team.

The MNR and HFMI were very responsive in dealing with information requests and concerns raised by the First Nations throughout the planning period. In addition, reviews of the proposed operations on the Hearst Forest were held in each of the First Nation communities in April, 2006, and there was also a review of the draft plan in October 2006 in Constance Lake.

The community of Constance Lake negotiated a Coexistence Agreement with the MNR, the forest industry and Indian and Northern Affairs Canada. At the core of the agreement is a broad respect for the values of the community. Although the agreement remains unsigned the parties appear committed to the spirit of the agreement. The agreement includes protocols for economic development of the community, contributions to bursaries and scholarships, and involvement of the community in other aspects of forest management.

There is a condition in the SFL that the community of Constance Lake is to be given the opportunity to be licensed to harvest approximately 13,000 m^3/yr. This condition was met through the issuance of an overlapping licence to Mammamattawa Inc., a First Nation owned company (now called Amik Logging). The company is a well-functioning private enterprise operated by community members. Since 2003/2004, the company harvested approximately 80,000 m^3 of additional wood annually on a contractual basis from Tembec and Lecours Lumber, attesting to the capacity of the company.

In general, the involvement of the community of Constance Lake and the efforts the MNR has made to facilitate its involvement stand out as a very strong aspect of management of the Forest. MNR has led this effort, but the Company and its shareholders have also participated in important ways, as well - for example, through the provision of harvesting opportunities beyond the minimum required amounts.

Best Practice

The MNR and Company are commended for their efforts to facilitate the involvement of the Constance Lake First Nation in forest management. These efforts stand out as good examples which could be emulated in other forests with First Nations communities who desire to participate in and benefit from forest management.

One of the most tangible contributions of the MNR to the good rapport between the parties is the funding of the Native Liaison position described above. The position provides a focus for the community's dialogue with the MNR. However, we note that the position is funded only as a recurring nine-month contract. Although other means have been found to maintain the position during the annual three-month funding hiatus, the fact that the position is not funded as a regular, full-time job could be interpreted as a lack of long-term commitment. Clearly this is not the message the MNR wants to send after working hard to develop the good rapport which exists.

Suggestion # 2

The MNR should commit to funding the Native Liaison position in Constance Lake as a full time position.

The healthy rapport between the parties facilitated open discussions about issues of concern to the First Nation regarding effects, or potential effects of forest management. The concerns included: the effects of herbicide spraying on wildlife and non-target vegetation, the effects of forest management and access on wildlife, and impacts of forest management on trapping. The most significant point of contention is the latter of these. The MNR hired a mediator to address past concerns raised by First Nation trappers and funding was provided by the MNR and industry to the community to hire a trapping coordinator to act as a conduit between the MNR, Industry and the First Nation. Although this has helped maintain discussions and a good rapport, the issue of compensation for harvesting on traplines remains a concern with First Nation members. Similarly the other issues above also remain concerns. Given the efforts of the MNR and company in working sincerely with the First Nations to address issues of importance to the communities, we do not believe a recommendation or suggestion is warranted.

3.2.4 Annual Work Schedule Public Inspection

The public review of the Annual Work Schedules consisted of the steps identified in the FMPM, and advertisements were placed in appropriate media. However as discussed in considerable detail in Section 3.3.8 and 3.3.11 there is an issue with the timing of the public review. The ads for public review of the Annual Work Schedule (AWS) all were placed in media at the beginning of March, prior to the AWS approval. As noted in Section 3.3.8, by putting out public review ads prior to the final approval of the AWSs, the public may not have always had the final approved AWS available for review. Of note is the 2006-07 AWS where public notice went out prior to the final AWS submission. However, we note that another reason for the late District Manager signature was that this was a formality that was completed when the District Manager was available and the date did not always correspond with the date that the MNR District was satisfied with the contents of the AWS. Recommendation # 11 in Section 3.3.8 addresses this issue.

3.3 FOREST MANAGEMENT PLANNING

3.3.1 Planning Team Activities

There were three important aspects associated with the preparation of this plan which were not previously part of the planning process (the previous plan was prepared using the 1996 FMPM). The 2004 FMPM was used for the first time to guide plan development, the planning team had to implement the landscape-level disturbance size distributions and residual requirements of the Natural Disturbance Pattern Emulation Guide (NDPEG), and the plan had to meet the technical specifications of the 2001 Forest Information Manual for the planning inventory.

Preparation of the 2007 FMP

The Terms of Reference (TOR) for the 2007 FMP was completed and approved by the MNR and SFL plan author in October, 2005. The approval for the TOR terms was only about 17 months prior to the start of the new plan period, which was 7 months short of the 24 months mandated by the FMPM. However, the terms of reference formal approval took almost 10 months longer than expected due to numerous edits and minor adjustments that occurred. The planning team was considered to have been established prior to final approval of the TOR.

The offices of both the MNR District and HFMI are located in Hearst. Despite some recent staff turnover, the SFL and MNR staffing remained fairly stable throughout the audit period. Hearst has traditionally had a very good SFL and MNR working relationship due to a collaborative and cooperative approaches taken by the two organizations.

The SFL office is located a few blocks down the road from the MNR District office. The closeness and good working relationship means that many of the administration and planning issues are resolved in person or on the phone, as opposed to using more formal and documented approaches. This helps expedite approvals and avoids disruptions to operations. However it means there is often a limited paper trail for FMP, AWS and AR related submissions, review, revision, and approval.

The planning team was large – 17 individuals served on the planning team over the course of the development of the plan. (There were not 17 unique positions on the planning team, because of staff turnover some positions were filled by more than one person over the course of plan development). The SFL was represented by the plan author (who was a co-chair), and a forest modeling and planning analyst. The MNR district was represented by an area forester (the other co-chair), a forest analyst, communications office, area biologist, Constance Lake First Nation liaison position, fire operations supervisor and area supervisor. Constance Lake First Nation had two aboriginal representatives on the planning team. The remaining planning team membership was comprised of an LCC representative and an overlapping licensee representative.

A couple of unique features of the Hearst Forest planning team that worked well were that the SFL and MNR each had a forest modeling analyst position to deal with the detailed planning inventory and modeling tasks and, as noted earlier, the MNR District funded a CLFN First Nations liaison position to help improve the CLFN input and benefits derived from the Hearst Forest.

The planning team was divided into 13 small task teams who were supported by regional MNR staff. The task teams were effective in that they were small and efficient and were able to complete assigned tasks and report back to the planning team relatively promptly. A steering committee was comprised of senior MNR District and Regional staff and senior staff of HFMI.

The terms of reference identified eleven regional and provincial plan advisors to the task teams and also listed four HFMI staff and five district staff as plan advisors, for a total of 20 plan advisors. However, the FMP plan contributor section only lists nine MNR regional and provincial specialists as plan advisors. The plan advisors were consulted and attended planning team meetings as required to provide advice on science, planning, biology, forest health and silviculture, parks, modeling, and cultural heritage.

The terms of reference stated that all planning team members would review the entire plan. The TOR also identified six specific district reviewers with explicit plan input and review responsibilities. The TOR also indicated that the regional FMP specialist would coordinate the regional review of the plan. There were only six MNR plan reviewers listed as plan contributors in the FMP with three from Hearst District and three from Northeast Region covering program areas for forestry, modeling and biology. The final list of required alterations indicated there were nine plan reviewers with forest health and silviculture specialist, forestry specialist and parks reviewers added. In addition there were seven different regional reviewers who provided required alterations on the Long Term Management Direction (LTMD).

Based on the initial assessment of plan reviewers, the auditors were concerned that there was no record of input into the review by the area biologist. MNR district staff indicated that because of the collaborative approach taken by the planning team in developing the plan, much of the MNR District review occurred outside the scope of the formal FMP review. The plan author would review and discuss the requirements for specific FMP sections at planning team meetings and then would draft the specific section and forward it to MNR District for review and feedback. Once, the content of the section was agreed upon then it would be completed.

The area biologist reviewed the operations planning with HFMI and also contributed specific text sections such as AOCs. Together they reviewed each block mainly to define riparian AOCs, stick nest AOCs and biodiversity blocks for NDPEG guideline implementation. The area biologist indicated that she did in fact review the draft FMP; however because her concerns were incorporated into comments submitted by the area forester and regional biologist, no comments attributed directly to her were recorded. The lack of documentation of the role that some reviewers played not only complicated the auditing process but is not an accurate portrayal of the manner in which this aspect of plan preparation proceeded.

Recommendation # 1

That HFMI and the MNR District ensure the list of plan contributors, including all plan reviewers is reported accurately in the next FMP.

Overall, the planning team had adequate representation of professional foresters and biologists and a capable team of advisors to address all of the planning requirements. The planning team met regularly and worked effectively and collaboratively.

Major Issues Identified in the FMP

There were four issues identified in the Major Issues section of the Plan:

1. Local clubs and four communities were opposed to access restrictions in the Hillmer/Fryatt Township boundary area. This restriction was addressed through the Resource Stewardship Agreement (RSA) between HFMI and the tourist outfitter (as discussed in Section 3.3.2).
2. CLFN expressed strong concerns regarding harvesting of their traplines. As described in Section 3.2.3 the MNR funded a trapping coordinator position to engage the trappers in identifying their values so they may be protected and issues can be resolved.
3. The planning inventory is identified as being dated with inaccuracies in stand typing and boundary locations. Efforts to deal with this are described in Section 3.3.5.
4. A concern is expressed that the Cultural Heritage assessment tool is flawed (Discussed in detail later in this section)

The major issues section (i.e. Section 6.1.17) was written at the draft plan stage and was not updated for the final plan. This is evidenced by the fact that two additional major issues showed up in the plan summary: AOCs for stick nesting birds of prey, and age-class substitution for the SB1 and SP1 forest units. Both of these issues were resolved in the course of the planning process (new AOCs for stick nesting birds were developed and modified planning approaches were developed to deal with age-class substitution issues.)

In addition to these, several other issues were discussed in the TOR and FMP that affected the decisions made during the planning process.

1. Landbase Un-certainty - due to un-regulated OLL boundary changes, un-certain management prescriptions for the Enhanced Management Area along the Hornepayne Highway, and wood land caribou requirements on the west side of the Hearst Forest in the absence of a clear policy.

2. Aboriginal Interests - concerned about forestry infringements on native rights and particularly impacts on traplines.

3. Poplar Under-Utilization – related to the lack of poplar markets in the region.

4. Commercial Thinning - related primarily to its definition as a harvest treatment rather than a silvicultural treatment.

5. Un-marketable Species – related to limited markets for poplar, and limited/no markets for balsam poplar, low grade white birch, cedar and tamarack.

6. Forest Unit Conversions – primarily related to the conversion of poor quality aspen sites (i.e. Po3) to Sp1 through planting.

7. Renewal Funding for Backlog Barren and Scattered Area - a total of 18,000 hectares of backlog barren and scattered area has not been regenerated.

All of these topics are discussed in various places throughout this report.

Cultural Heritage Assessment Tool

The planning team expressed concern that the Cultural Heritage Assessment Tool (the model currently used by the MNR to identify area with a high potential for archaeological values) had weaknesses. They reported that the areas identified as High Potential Cultural Heritage (HPCH) sites by the tool were highly focussed on lakes and waterways and did not consider the physical features of the land. In some cases, physical features (e.g. steep terrain) would preclude camping or other uses adjacent to HPCH sites located near waterways and would therefore significantly lower a sites' potential or eliminate it as a potential HPCH site. Because physical features of the land were not considered in such a way, the planning team had to assess and review more HPCH sites than it believed necessary during plan development and applications had to be made to remove HPCH sites to avoid unnecessary restrictions.

During the preparation of the 2007 FMP, a preliminary HPCH map was provided based on the Heritage Assessment Tool. The planning team then overlaid the map with the planned operations, flew a portion of the preliminary HPCH sites, and interpreted others with aerial photos to define the likely First Nation camp sites (which would be HPCH sites). These were reviewed with the Provincial Cultural Heritage Specialist to remove illogical HPCH sites.

These issues have been present for some time and have been the focus of complaints from licensees who are required to either protect an identified area with an AOC, modify operations, or undertake an archeological assessment. The MNR recently revised the tool so that it takes additional sources of information into account and places less weight than formerly on small streams and minor waterbodies. The provincial cultural heritage specialist noted that the revised tool is much more selective than the previous version; unfortunately the revised tool was not available in time to help HFMI in the 2007 FMP.

Bump-Up Requests and Issue Resolution

In the development of the 2007 FMP, there were no bump-up requests or issues that went to issue resolution

Collaborative Rapport

One aspect of FMP planning in Ontario is that most of the plan advisors, plan reviewers, and MNR district staff have less involvement than do company staff. In some circumstances this can play a role in the development of a tense, or even confrontational relationship between those with different responsibilities in planning. Hearst District MNR and HFMI worked hard to avoid this pitfall. The auditors were impressed with the good working relationship between the MNR and HFMI and the collaborative approach used. There is regular contact between the organizations with informal discussion and review at appropriate stages of the plan development, which has helped streamline planning processes, manage workloads, reduce required alterations, and manage review and approval timelines.

The MNR District Manager would often sit down with key members of the planning team or arrange a few meetings with the Regional MNR staff to assess where they were in the process. This practice helped to define hurdles and roadblocks, resolve issues, and define the best steps to get the plan approved on time. For the 2007 FMP development, the Hearst District Manager's involvement helped bring together and maintained a collegial outlook between the various parties, encouraged collaboration, and facilitated plan approval.

3.3.2 Resource Stewardship Agreements

In association with the development of the 2007 FMP, the Company undertook to engage resource-based tourism establishments in the development of Resource Stewardship Agreements (RSAs). The developmental approach set out in the 2004 FMPM was followed. The Company received a list of the 12 registered tourism establishments on the Hearst Forest from the Ministry of Tourism and, after discussions with the Ministry of Tourism regarding content and format, sent letters to each outfitter offering to engage in negotiations to conclude a RSA. These letters were sent in August 2004.

Of the 12 registered tourism outfitters, seven responded. Of these, three were not interested. In November 2004, a meeting was held in Sudbury that was intended to provide to interested tourism operators an overview of RSA's and the RSA development process. Two Company staff attended this meeting.

Of the remote tourism outfitters on the Forest, one, located in the Waxitike area (the north east corner of the Forest), decided to pursue the development of an RSA. Waxitike is notable for three designated remote tourism lakes and for good moose hunting. The area is heavily used by local sportspeople. There was a gap of approximately eighteen months after the Sudbury meeting before the Company and the tourism operator began negotiations, in March 2006. This was due to the workload associated with plan development. Since the area is so popular with local sportspersons, both the tourism operator and the Company recognized early in the discussions that there were many stakeholders and that it would increase the probability of developing an outcome that was suitable to the majority of stakeholders if the process was conducted in a transparent manner. This contrasts with the prescribed process involving closed-door negotiations between the SFL-holder and the tourism outfitter. Accordingly, the Company and outfitter held a series of meetings with representatives from four local fish and game clubs (Hearst, Opasatika, Mattice, and Kapuskasing) and MNR staff. At some of the meetings, a representative of the Municipality of Mattice-Val Cote attended. Because there were a considerable number of side meetings between a subset of the participants, it is not clear how many meetings were held in total, however it appears that between 6 – 8 public or all stakeholder inclusive meetings were held from mid-2006 through the summer of 2007.

The main areas of concern were restrictions on road access, road location vis-à-vis the lakes in the area, potential hunting restrictions in the area, and the ability of enforcement to make sure the terms of any agreement would be respected. Hunting and angling club representatives recognized the needs of the tourism outfitter, and vice-versa, however the outfitter was concerned about the impacts of access on moose and fish populations, and on the remoteness associated with the tourism experience that was being provided.

At the time of the audit site visit, the Company and the tourism operator had agreed on the terms of an RSA. The tourism operator ended up with a lesser amount of access under restriction than had originally been proposed, however the outfitter and the Company plan to draft the document and sign it in the coming months. Because agreement was reached during the spring of 2007, after the FMP had been prepared and approved, the relevant terms from the RSA were amended into the FMP on August 6, 2007. The access restrictions are to be posted as signage on the respective roads, and the success of the agreement depends in part on the effectiveness of MNR enforcement. Because the fish and game clubs participated in the process and reached agreement with the operator and Company, it is anticipated that the club members will be respectful of the agreement. MNR has identified enforcement of the access restrictions as a high priority.

In conclusion, the Company and the tourism operator are praised by the audit team for having the foresight and courage to conduct a public process. While it is premature to assess the success of the agreement, there are many encouraging signs that it will be effective. This is another example of the inclusiveness and transparency that are a hallmark of forest management in the Hearst District, as evidenced in each of the three Best Practices identified in this audit.

FMP Requirements for RSAs

While the Company does work conscientiously with remote tourism operators on the Forest, there is some relevant required FMP content that was absent.

The Tourism and Forestry Industry Memorandum of Understanding signed in June 2000 sets out principles that each industry will adhere to in order to promote a co-existence that has a minimal negative impact on each other. The Memorandum requires that each Forest Management Plan contain a statement confirming the commitment of the SFL-holder to the maintenance of the viability of the tourism industry by protecting tourism values. A review of the 2007 FMP did not reveal this statement or one that could be construed to have the same intent. The Memorandum also requires that FMPs contain a statement that the existence of RSA's will not bind or limit the Minister's right to make land use decisions for Crown land in Ontario. This statement also could not be located.

Finally, the FMP is required to have a map of Tourism Values (Map 4.6). While the RSA negotiations continued through the review and approval of the 2007 FMP, no map, in draft or otherwise, could be located in the Company office. Now that the RSA negotiations have concluded, all of the relevant tourism values should be known and it should be possible to develop a Tourism Values Map.

Both of the required statements, as well as the map, are important components of the FMP and the audit team believes that the FMP should be amended to include these elements.

Recommendation # 2

That HFMI and MNR amend the 2007 FMP to add the required statement of commitment to the tourism sector, the required statement that RSA's do not limit the Minister's land use decision-making ability, and an up-to-date map of Tourism Values.

3.3.3 Sources of Direction

The FMPM requires that forest management plans pay heed to a variety of sources of strategic and planning direction, including:

- MNR's provincial goals, objectives and policies for natural resource management;
- Forest management guides (implementation manuals);
- Applicable regional- and district-level land use direction;
- MNR internal operational audits and independent audits for the management unit;
- Strategic business direction for forest-based businesses;
- The results of ongoing negotiations with Aboriginal peoples whose communities are situated in the management unit; and
- Licences regarding resource management on the forest.

This audit found adherence to all key elements of the sources of direction. The 2007 FMP is a comprehensive document and makes consistent use of, and reference to, relevant sources of direction. Examination of field practices also satisfied the Audit Team that the sources of direction were adhered to during operations. As all audits do, this audit identified some instances in which adherence to management direction should be improved, and this is reflected in several of this audit's recommendations. However, considered as a whole, the Audit Team is satisfied that relevant sources of direction have been followed.

3.3.4 Plan Introduction

The Introduction section of the 2007 FMP contains the elements required by the FMPM, including an index to the environmental components of the Plan and a brief description of how MNR's Statement of Environmental Values under the Environmental Bill of Rights had been considered in plan development. The management unit description component of the introductory sections of the plan includes reasonable descriptions of the current forest, the Forest`s geology, soils, wildlife, and socio-economics. This section also includes a description of the historic forest, which is discussed in detail in Section 3.3.5 of this report.

3.3.5 Management Unit Description

Forest Resource Inventory

For the preparation of the 2007 FMP, the 1992 Forest Resource Inventory (FRI) for the Hearst Forest was updated to reflect actual harvest depletions up to March 31, 2004, and forecast harvest depletions for the following three years up to March 31, 2007. Free-to-grow survey results up to March 31, 2004 were also incorporated. HFMI's methods for inventory update were appropriate and comprehensive: their silvicultural tracking system was found to meet all requirements. A good description of the inventory update

procedures used in preparation of the planning inventory is contained in Section 6.1.5 "References for Inventory Update" and Section 6.1.6 "Analysis Package" in the 2007 FMP.

The 2007 FMP reported that the total Crown managed production forest area for the Hearst Forest was 921,852 ha. Of this total, 28,457 ha, or 3.1%, was in the Recent Disturbance category, while an additional area of 161,564 ha, or 17.5%, was reported to be below regeneration standards. This latter area represents stands that have not yet been declared free-to-grow. During the process of preparing the planning inventory for the 2007 FMP, these areas were accounted for by using data from historical silvicultural records to determine the most likely stand types and forest units for these areas based on the treatments that were applied. The status of free-to-grow assessments on the Forest is discussed further in Sections 3.6.1 and 3.8.6

Although the area in the recent disturbance and below regeneration standards categories is large (20.6% of the production forest), HFMI is in process of developing an updated FRI. Approximately 3,000 stands will be cruised to provide calibration points for the photo interpretation, and a substantial portion of these will be located in stands considered to be below regeneration standards. The new inventory will provide updated forest attributes for all stands except for the recent disturbances where the trees are still too small to be photo-interpreted. The updated FRI is expected to be completed in 2008, which will be in plenty of time for the next FMP and for use in the second five-year operational plan of the current 10-year FMP. When the new FRI is completed, HFMI will be assessing whether the differences between the updated inventory and the current planning inventory are sufficient to necessitate remodeling for the second 5-year term of the 2007 FMP. The new FRI will be based on digital imagery. HFMI participated as one of three SFLs in the province to test and implement the new inventory methods which are now in use. HFMI has acquired Light Detection and Ranging (LIDAR) data for the Hearst Forest, which has the potential for a number of inventory, planning, and operational applications.

Further issues regarding the quality of the inventory, particularly as it applies to aspen and balsam poplar are discussed in Section 3.4.2.

The Historical Forest

Analyses presented in the FMP characterize the historic forest primarily in terms of its interspersion of disturbed and undisturbed patches, patch size, and age-class distribution, focusing on the amount of old forest present. Work done for the 1997 FMP formed much of the key results of the analyses. The benchmark historic forest was taken to be the Forest which was estimated to exist in 1920. The 1920 forest was "reconstructed" based on inventory information from the 1960's-1980's for management units which have since been amalgamated to form the Hearst Forest.

There are several instances in which the characterization of the historic forest is inconsistent in different places within the plan. This has primarily to do with the manner in which the "natural" amount of old forest is characterized. In several places the plan notes that the normal fire cycle of the Forest is 120-140 years, as determined by research done elsewhere in the Claybelt. The plan also cites the negative exponential relationship as a reasonable portrayal of the age-class distribution of the Forest. (Most scientific writers concur that the negative exponential relationship is reasonable when

considering broad areas of forest.) A forest governed by the negative exponential with a fire return interval of 130 years (halfway between 120 and 140) would have approximately 46% of the Forest area in stands greater than 100 years of age.

The 2007 FMP describes in several places that in 1920 (i.e. the benchmark "natural" year), only about 10% of the Forest was older than 100 years. (The year 1920 was selected as a benchmark because it was prior to effective fire suppression and widespread forest management.) Although it would not be normal for a forest governed by a 120-140 year fire cycle to have such a small proportion of old forest, it is possible that such circumstances could occur given the long periods of time over which natural dynamics occur. However, if the Forest really is governed by a 120-140 year fire cycle then 10% old growth (such as which may have occurred in 1920) should not be used as a benchmark or target for determining the sufficiency of old growth amounts present on the Forest.

In several places the plan notes that there is much more old forest on the Forest now than formerly existed and notes that the present condition is not "natural". Table 1 of the FMP notes that 39% of the Forest is greater than 100 years old. This is not inconsistent with a forest with a fire cycle of 130 years. In fact, one could argue that the amount of old forest (i.e. forest > 100 years) is more "natural" now than it was in the estimated 1920 forest, if a fire cycle of 120-140 years is the norm for this forest.

We also note that there are difficulties in the manner in which the age-class distribution of the historic 1920 forest was estimated. The more recent (1963-1981) inventories used in estimating the 1920 forest had an inherent bias in that inventories of that vintage typically did not recognize forest ages greater than about 185 years. Therefore, if a 1981 inventory had a maximum age category of 185 years, the oldest stand that it would be possible for such an inventory to estimate in for the year 1920 using the techniques employed in the FMP's analysis would be 124 years (i.e. 185-(1981-1920)). The fact that inventories were based on photo-interpretation with a maximum inferred age suggests that their use in estimating the age-class distribution of historic forests is not ideal.

In spite of these difficulties, the audit team recognizes that the attempt to characterize the historic forest was useful in providing a sense of what the historic forest may have looked like and in providing input into the plan's targets.

One concern of the audit team was that characterization of old growth in the plan may be based on inaccurate information and analytical techniques as it is derived from the calculated historic forest. In several places the plan describes how there is much more old growth on the Forest now than is natural. Although the old growth target in the plan reflects the interpretation that there is an unnaturally high amount of old forest, the amount of old growth area predicted to occur on the Forest does not change markedly. (We note that the null run also contributed to the development of the plan's old growth targets). During the 100 year modeling term, the total area in all Forest Units that is mature and over-mature forest decreases from 55.1 percent to 49.3 percent while the amount of over mature forest decreases from 30.3 percent to 27.2 percent. The related objective in the plan ("to maintain the old growth component of the all forest units at a quantity similar to the levels achieved by the null run, greater than or equal to 50% and less than the current level") permitted a significantly greater decline in old forest than is projected to occur.

Nonetheless, given that difficulties in the methodology used to characterize the historic forest and its potential significance in influencing the objectives for the future forest, the audit team believes it is important that this component of the plan be revisited in the preparation of the next FMP. Given that by that time a new inventory will be available and the requirements of the landscape guide will be in place, it seems all but certain that the analysis would be re-visited. Nonetheless the audit team includes the following suggestion to emphasize the importance of reviewing the basis for estimating the historic forest.

Suggestion # 3

The Planning Team for the next FMP should review the means used to estimate the historic forest and attempt to ensuring that there is consistency between the old-growth targets and the disturbance dynamics used in the plan's modeling.

Woodland Caribou

The management of woodland caribou is an important issue in northern boreal SFLs in Ontario. Ontario's population of woodland caribou is designated as "Threatened" by both the federal government[8] and Ontario[9]. The present population of caribou on the Forest likely represents a small portion of the numbers which formerly existed as the range of caribou has receded north and populations have declined in the face of human population growth and extensive use of forested lands[10].

In 2005, MNR's Northeast Regional Director provided written instructions to the District Managers responsible for overseeing the activities of planning teams developing FMPs in the Northeast Region (Hearst, Big Pic and Nagagami) regarding incorporation of caribou habitat considerations into the FMPs being developed.[11] In response to this memorandum, and its independent initiatives, the planning team identified several measures in the FMP to attempt to accommodate caribou's need for large areas of mature-overmature forest free from extensive human disturbance.

- Management of caribou on the Forest was co-ordinated with comparable efforts on the neighbouring Big Pic and Nagagami Forests, which face comparable challenges in managing for caribou. Co-ordination with the managers of the Forests led to the development of preliminary habitat mosaics transcending the boundaries of the Forests.

[8] COSEWIC. 2006. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. Web site: http://www.cosewic.gc.ca/eng/sct0/rpt/rpt_csar_e.cfm

[9] Ontario Ministry of Natural Resources. Species at Risk Unit. 2007 Species at Risk in Ontario. http://www.mnr.gov.on.ca/mnr/speciesatrisk/

[10] Several citable documents make these points, including:

- Darby, W.R., H.R. Timmerman, J.B. Snider, K.F. Abraham, R.A. Stefanski, C.A. Johnson. 1989. Woodland Caribou in Ontario. Background to a Policy. Ontario Ministry of Natural Resources. Queen's Printer for Ontario;
- Harris, A. 1999. Report on the Status of Woodland Caribou in Ontario. Report prepared for the Committee on the Status of Species at Risk in Ontario. Report
- Schaefer, J.A. 2003. Long-term range recession and the persistence of caribou in the taiga. Conservation Biology 17: 1435-1439.

[11] Memorandum from MNR Regional Director (R. Galloway) to District Managers for Hearst and Wawa. Dated June 6, 2005.

- Following the direction of the MNR's existing guidelines for Caribou[12] large areas of contiguous mature and old forest have been identified for deferral. Approximately 90,000 ha are being deferred from harvest for 40 to 60 years. Deferrals were identified in co-ordination with managing for the habitat requirements of marten; the development of "maribou" cores, intended to provide habitat for both marten and caribou, was a key component of this effort.
- Identification of harvest areas for the near future put a premium on harvesting blocks which were adjacent to recent cutovers to create areas which would be large continuous cores in the future.

These strategies are important components of managing caribou habitat, however, aside from the Regional Director's letter, they lack provincial direction, which should be provided for management of a Species at Risk. Ontario's Woodland Caribou Recovery Team developed a draft recovery strategy for woodland caribou[13], which, if it were an "official" strategy would provide such context and direction. The document was released in February of 2005, and was posted to Environmental Bill of Rights in the summer of 2006, with a closing date for public comments in September of 2006 – over a year-and-a-half ago. A representative of the MNR's Species at Risk Unit informed the audit team that the MNR "hopes to be in a position to finalize the strategy very soon". The MNR will consider the recovery strategy as "advice" rather than "policy" (in spite of the fact that the recovery team was made up mostly of MNR staff) and plans to develop a "Caribou Conservation Framework" using the advice of the strategy. The audit team was told that one of the key considerations in the translating the advice into the Framework will be the relationship between caribou habitat needs and the forest industry.

The recovery strategy has been in development for more than five years, and in draft form for well over a year. Given the high-profile nature of caribou, and their tenuous existence in areas of the boreal forest which are being managed for industrial-scale fibre production, provision of provincial direction should be a priority.

The draft strategy has important elements which should provide SFL-level, regional-level and provincial-level direction in working towards the recovery of woodland caribou populations. Among these is the identification of recovery zones, which include portions of the Hearst Forest, and approaches dealing with meeting objectives for the recovery zones which address legislation and policy; inventory, monitoring, and reporting; population management; land use planning; and research. Although the efforts directed at caribou habitat management in the 2007 FMP are noteworthy, they could be significantly bolstered if the strategy and Caribou Conservation Framework were finalized and the resources to implement them were made available.

Recommendation # 3

That Corporate MNR finalize the Caribou Recovery Strategy and the Caribou Conservation Framework and provide resource managers with the means to implement them.

[12] Racey, G., A. Harris, L. Gerrish, T. Armstrong, J. McNicol, and J. Baker. 1999. Forest management guidelines for the conservation of woodland caribou: A landscape approach. Final Draft. OMNR Thunder Bay, 69 p.

[13] Ontario's Woodland Caribou Recovery Team. 2005. Recovery Strategy for Forest-Dwelling Woodland Caribou (*Rangifer tarandus caribou*) in Ontario. DRAFT Feb. 3, 2005

Assuming that the Strategy and Framework are developed in the next while, managers of the Forest will likely need to revisit the approaches identified in the FMP to ensure that they are consistent with these documents and sufficient to meet their intents. Given that the present FMP covers a ten-year period, review of the implications of the caribou recovery strategy should be a major consideration in determining how the second five years should be implemented.

Because caribou are sensitive to vehicular traffic and because road traffic often leads to mortality through accidental or intentional hunting, an important part of caribou management will be access control in core areas. This is recognized in the main text of the FMP: "In all of the caribou-marten (Maribou) cores, the road strategy is to limit long term access by minimizing development of all season roads and to actively decommission roads once planting and tending is complete." However the management strategies for specific roads provided in the supplementary documentation provide no indication that such planning has taken place, leaving something of a disconnect between the plan and its supplementary documentation.

Recommendation # 4

That the Company review the strategies for individual roads in the supplementary documentation and ensure that they incorporate requirements for access control where they will be used to access caribou blocks.

Non-Timber Values

Several of the objectives of the 2007 FMP relate to non-timber values which occur at specific locations in the Forest (e.g. Objective no. 10: To minimize the impact of forestry operations on Bald Eagle nest sites; Objective no. 15: To ensure that forestry operations do not negatively impact non-timber values associated in forest cover.) Fulfillment of these objectives requires that accurate information on the location of these values be available.

In the course of normal FMP preparation, planning teams have been provided funding specifically to survey areas which are anticipated to be operated on in the coming plan. Once this pulse of funding was used, additional FMP funding has not been provided until the next plan is being prepared. Although forest management planning is now based on ten-year plans, a five-year cycle will still be used for key aspects of operational planning and so it is anticipated that FMP funding for values surveys will continue to be provided every five years. Given that values surveys are generally flown one and two years prior to the onset of operations for a five-year period, it can occur that the values data providing direction for operations are up to seven years old[14].

In the interval between when values surveys are conducted and operations occur, some values (most often stick-nests) disappear (i.e. they, or the trees in which they occur are blown down) and others are established (i.e. new nests are built). The older the values data, the greater is the potential to both "protect" values which no longer exist and omit protection of newly-established values (Figure 4).

[14] The data could be seven years old for areas which were being operated on in the fifth year of a plan and the values data were collected two years prior to the initiation of the plan. Although this is the most extreme scenario it can, and does occur.

Figure 4. Osprey nest discovered during operations in Acres Township. Operations encroached very close to the nest before it was seen by the operators. This nest was likely constructed after the area was surveyed for values.

Furthermore, given that there are almost always changes in the areas selected for operations during the course of plan implementation, surveying for values several years in advance will likely result in instances in which values data have been collected for areas which will not be the subject of operations, and other areas which receive operations may not have had values surveys. Although MNR and company staff record values which are discovered during the course of other activities on the Forest, this is not sufficient to make up for the inadequacies of the present system which relies on a single "pulse" of values survey funding every five years. The audit team believes the MNR should provide funding for values surveys on a more rational basis.

Discussions in Section 3.4.1 describe the stream classification protocol used on the Hearst Forest. In that discussion we note that in the absence of comprehensive funding, the protocol which MNR staff have developed to classify the thermal regime of streams is a useful tool to compensate for the absence of more complete information. The following recommendation is intended to direct Corporate MNR to provide adequate funding to address issues both related to the timing of values funding (described above) and the level of funding so that high priority waterbodies can be comprehensively assessed for their sensitivity to forest management operations and thermal regime.

Recommendation # 5

That Corporate MNR ensure that adequate funding for values collection is made available more frequently to maintain currency of information used in values protection.

Socio-economic Profile

The socio-economic profile in the 2007 FMP was very well done and included all required information. The summary is well written and contains a considerable amount of local knowledge; the District MNR staff on the planning team made efforts to obtain additional information from the tourism sector and included a helpful profile of the Constance Lake First Nation community.

3.3.6 Objectives and Strategies

Forest management plans that became effective April 1, 2007 were the first to be completed under the direction provided by the 2004 FMPM. As noted earlier, the 2004 manual contained numerous differences from its predecessor, including the extension of the period over which the forest management plan would remain in effect from 5 to 10 years, changes to the plan development process, content, and consultation requirements.

One of the changes introduced in the new manual was the requirement for the District Manager to convene a meeting of the planning team members, MNR plan advisors and the LCC to discuss and identify the long-term benefits that they would like to see from the Forest. Here, the MNR and Company took the position that since the Hearst Forest is a public forest, the meeting should be advertised and open to members of the public. As discussed in Section 3.2.1, they further decided to host a series of five meetings and two field tours over a 16-month period, and they made special efforts to involve members of the Constance Lake community, including holding a meeting at the community and a field tour in collaboration with the community. The meetings focused on a range of broad topics that were central to understanding forest management and planning, and a number of outside speakers were brought in.

The consultation effort around defining the future forest was designed to create a plan that expressed the public's views and goals, as well as those of key stakeholders. One of the outcomes of this approach was that there were numerous objectives identified – thirty were included in the final FMP. In cases where there were incompatibilities between desired outcomes, the meetings enabled the planning team to develop a sense of appropriate relative weights and priorities to be assigned to various goals. This was useful when SFMM modeling revealed that the achievement of some objectives had significant negative impacts on others. For example, the public generally wanted to forest to stay much the same as it was, however it was also agreed to reduce the proportion of old growth on the assumption that under a more natural fire cycle, the Forest would usually be younger than at present. The thinking process of the planning team was well-described in the discussion of the scoping process in the FMP, which illuminated some of the key choices that were made in balancing the achievement of different objectives.

In many ways, the set of objectives in the 2007 FMP continued the themes of the 2002 FMP. An analysis of harvest levels and projected impact on other users under the 2007 FMP, compared with the 2002 FMP, revealed only very minor differences. The number of objectives in each class increased – for example, there were 12 objectives with major socio-economic content, an increase from seven in the 2002 FMP. Additional objectives in the 2007 FMP sometimes specified things that were already being done (provision of firewood near communities) while others were elaborated on – for example there were three separate objectives related to consultation in the 2007 FMP, versus two in the 2002 FMP. Other objectives targeted some of the areas that proved problematic during the 2002 FMP period, such as the utilization of poplar. The 2007 FMP objectives met the requirements of the FMPM.

The FMP contains a set of 58 indicators that will be used to track attainment of the objectives. The FMP contained a thorough documentation of the initial and target levels of the indicators (in FMP-13).

3.3.7 Operational Planning

Harvest

The Available Harvest Area (AHA) that is calculated in the 2007 FMP declines modestly from the first term and reaches it low point roughly 40 years in the future. From current levels to the minimum point, the decline is 7% for SPF and 5% for poplar. Because the available harvest areas of both species groups effectively recover to their present levels by 2107, the projected available harvest areas suggest a sustainable wood supply.

The Company was able to allocate the planned harvest among the forest units in such a way that the 10-year forecast of the harvest was very close to the AHA. There was no surplus declared, and no salvage was planned. The forest unit where there was the largest discrepancy was PO3, where 93% of the AHA was planned for harvest. The total forecast harvest was only 82 ha less than the AHA, a difference of less than 0.1%.

The Company allocated the harvest on a roughly even basis between the two five year periods of the 2007 FMP – roughly 49% of the forecast harvest is to be cut in the first five years, with the remainder to be cut in the second period. Factors such as block size, access, balance between winter and summer wood, and traditional harvest areas played a role in determining the block allocations per period. The difference between forecast harvest areas in the two periods is 1,304 ha.

It is also of interest to see that while there was a negligible difference in the planned harvest area between the 2002 and 2007 FMPs, there are some significant shifts in the relative contribution of different forest units to the planned harvest. Most notable is the reduction in the planned harvest in the jack pine forest unit, which falls from a planned average annual level of 525 ha in the 2002 FMP to 42 ha in the 2007 FMP. This reflects the Company's 2002 strategy of prioritizing the harvest of some large areas of very mature jack pine, to capture the volume before the stands began to decline. In the 2007 FMP, the harvest of the SB1 forest unit increases to provide desired levels of conifer. Shifts between the amount of hardwood and mixedwood forest unit area are largely offsetting.

In reviewing the 2007 FMP, the auditors observed that Table FMP 15, Forecast and Planned Harvest Area, shows the total ten-year forecast harvest area as being 76,640 ha but the totals of the individual forest units sum to 78,142 ha. The calculated AHA is 78,223 ha. The difference between the forest unit total and the printed total in Table FMP-15 is 1,502 ha, and this seems to be the area of commercial thinning that is considered to be a harvest but somehow may have been excluded from the total, perhaps because of a spreadsheet error. There is confusion in other places in the FMP, such as in Table 24, which also ignores the commercial thinning in the computation of the AHA. The auditors feel that the confusion engendered by the inadvertent use of different figures for the AHA and planned harvest levels should be resolved, since these are perhaps the most important numbers in the FMP.

Recommendation # 6

That HFMI review and amend the 2007 FMP to ensure that consistent figures are used for the AHA and planned harvest levels throughout the FMP.

Poplar Harvest and Commitments

The forecast harvest of poplar for Oriented Strand Board (OSB) use over the next five-year period is 729,000 m^3, which exceeds the harvest commitments of 665,000 m^3 to Grant Forest Products (Grant) and Longlac Wood Industries (LWI). There were discussions concerning additional five-year commitments totaling 181,500 m^3 of OSB poplar to LWI and Grant, but these did not materialize. An additional business arrangement that would have provided 422,475 m^3 of balsam poplar was also contemplated. Had these commitments been finalized, the committed poplar volume would have well exceeded the planned volume. The committed poplar veneer volume of 313,010 m^3 over five years exceeds the planned volume of approximately 247,000 m^3. Given the difficulties which have been experienced in obtaining and utilizing planned poplar volumes, it seems to be fortunate that these additional commitments were not made since it is questionable whether the Forest can support current hardwood commitments, let alone future commitments. These issues are discussed in a broader context in Section 3.8.3 of this report.

Balsam Poplar Yields

One of the modifications in the 2007 FMP compared to the 2002 FMP was that the volume of balsam poplar was formally broken out of the general poplar volume. This was important because one company entered into a business arrangement to use balsam poplar, although in fact little if any was used. However, it had been estimated that approximately one-third of the total poplar volume on the Hearst Forest was balsam poplar, which is generally left standing or felled and left in the bush in situations where it impedes harvesting or road building. This is a significant volume, yet the inventory does not specifically identify it (it is typed as "poplar") and the yield curves for it have had very little work done on them. This proved to be problematic, and the planning team decided that the base SFMM yield curves for the species were not accurate and so estimated yield curves based on the Hearst poplar yields and local knowledge. Because there is a considerable volume of balsam poplar on the forest, and there is the prospect that it will attract commercial interest, it would be beneficial if the new inventory that the Company is developing would separate balsam poplar.

Suggestion # 4

The Company should consider requesting separate identification of balsam poplar in its new forest inventory where it is feasible.

Silvicultural Ground Rules

Forecasts for renewal, site preparation, tending, and renewal support activities in the 2007 FMP were reasonable and were consistent with the selected management alternative. The Silvicultural Ground Rules (SGRs) GRs in the 2007 FMP were found to be consistent with the Silvicultural Guides. The preferred SGRs for each forest unit were reasonable and appropriate for the site conditions on the Hearst Forest. The SGRs had been updated since the 2002 FMP, based on the considerable experience of the planning team. The natural and post-harvest successional trend inputs to the SFMM modeling, as described in the FMP Section 6.1.6 "Analysis Package", appeared to be appropriate for the Hearst Forest, and their development reflected considerable thought and effort from the planning team.

The Forest Operations Prescriptions (FOPs) contained in the AWS for the audit period were found to be consistent with the SGRs contained in the 2002 FMP.

Silvicultural Exceptions

As in the 2002 FMP, there were two exceptions to the Silvicultural Guides listed in the 2007 FMP. These were for 1) commercial thinning, and 2) prescribed burning of Northeast Ecosites 12 and 13. The 2007 FMP contained a good description of the proposed monitoring program for these exceptions in Section 6.1.11 "Monitoring Program for Exceptions". We reviewed commercial thinning operations undertaken by HFMI in the field, but no prescribed burning was conducted during the audit period.

Commercial Thinning

HFMI is one of the few forest management units in the province where commercial thinning (CT) has been implemented. Although commercial thinning is often undertaken primarily to improve the development of the residual stand, it is usually defined in terms of harvesting. The 2004 FMPM defines thinning as "A cutting made in an immature crop or forest stand primarily to accelerate diameter increment but also, by suitable selection, to improve the average form of the trees that remain." A thinning is commercial when the thinned material is removed from the site and used as a product. Since CT is performed after a stand has reached free-to-grow status, it is a treatment that the manager undertakes at his discretion. The benefits of CT include capturing some of the mortality that occurs during the normal development of a stand, creating growing space for the remaining stems, and concentrating future growth on fewer and better stems. CT creates a merchantable stand sooner with a higher quality of timber, compared to an equivalent unthinned stand. Undertaking commercial thinning in stands on productive sites close to the mill improves the value of the forest estate, and was one of the practices that was envisaged in MNR's prime sites strategy in the mid-1980's, which has since lapsed.

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Figure 5. Commercial thinning operation on the Hearst Forest. (Picture supplied by Hearst District MNR.)

The Ontario Forest Accord (item #11) identified what it called semi-commercial thinnings as an opportunity (#2) to be pursued. The committee set up under the Accord to develop specifications for each identified opportunity specified that semi-commercial thinning would yield a commercial volume of no more than 35 m^3/ha for red and white pine and white spruce, and no more than 30 m^3/ha in the case of jack pine. The volume harvested under Opportunity #2 was to have a low stumpage rate and have all other Crown charges waived.

The 2007 FMP includes provision for a planned 1500 ha of commercial thinning over the next ten years in the SP1 forest unit, and for commercial thinning in the PJ2 forest unit in future periods. This follows a pilot test of commercial thinning undertaken in 2003 and 2004, in which 83 ha in two plantations – 40-year old mixed spruce and 30-year old jack pine were commercially thinned. The thinning operations in these plantations yielded an average of 25 m^3/ha, of which 58% was pulp and the remainder sawlogs. In these pilot tests, roughly 30% of the stems in the stand were removed – both of these pilot tests were classed as Opportunity #2 semi-commercial thinnings.

One of the reasons that HFMI has been interested in CT is that it could boost the wood supply. The Company has estimated that "If we can operationalize thinning in 25 to 40 year old plantations, on the Hearst Forest alone we can find 80-90,000 m^3 a year for the next 20 years to offset some of the losses from implementing the [Forest] Accord". The

audit team suggests that it is difficult for the forest industry to thrive if it is in a situation where wood supply is continually declining, and CT offers some potential for reversing what has been a static to declining actual wood supply on the Hearst Forest since 1992.

While commercial thinning is widely used in forests around the world, including in the boreal forests of Scandinavia, it has not been widely applied in Ontario's boreal forest. MNR has guardedly accepted its use in Ontario, but inadvertently created a number of obstacles by its precautionary approach. Despite Accord Opportunity #2, MNR originally requested that HFMI pay full Crown dues, Forestry Futures charges and renewal trust charges on each cubic metre harvested from CT. Because CT is a high cost operation, the imposition of full charges would eliminate any interest in thinning – in the Hearst pilot tests, the SFL negotiated an agreement where they paid $\$0.59/m^3$ on the commercially thinned volume.

Presently, the licensee is required to put in place a monitoring program to collect data on the outcome of the operation. This is because MNR classes commercial thinning as "not recommended". While the audit team agrees that it would be useful to collect data on the outcome of the operation and the response of the stands, requiring the licensee to pay the full cost of this adds another disincentive.

The audit team thinks that MNR's caution towards commercial thinning is well-intentioned but excessive and discourages the adoption of an operation that is widely used elsewhere around the world. CT has the potential to improve timber quality within the forest and mitigate impending supply reductions in conifer as well as hardwood. Furthermore, as a market for biofuel develops, there is bound to be upward pressure on the price of wood fibre, which means that CT will become more attractive over time.

Regional MNR staff have devoted considerable attention to commercial thinning in the last several years, producing a literature review and knowledge synthesis[15], a guide to undertaking CT, and an analysis of the potential difficulties and uncertainties regarding CT, including institutional constraints. The regional reports emphasize the lack of knowledge of long-term impacts of CT in boreal Ontario, but are supportive of commercial thinning in appropriate conditions.

Within MNR, there is recognition that current policies and guidelines do not encourage CT, and there is movement to become more accommodating. Regional staff report that there is consideration being given to designating CT as either conditionally recommended, which does not require monitoring, or developmental, which requires provincially coordinated monitoring, in the next version of the silvicultural guides. In the view of the audit team, these moves would be beneficial, although some on-going monitoring would be useful given that there is such uncertainty regarding the potential merits of CT. MNR also has a proposal before Industry Relations to reduce the Crown charges associated with CT, which is also laudable. Yet these initiatives do not often move quickly.

The audit team strongly supports HFMI's efforts to undertake commercial thinning, and believes that Regional and Corporate MNR should be more supportive of the activity,

[15] McKinnon, Leanne, Gordon J. Kayahara and Robert G. White. 2006. Biological framework for commercial thinning even-aged single-species stands of jack pine, white spruce and black spruce in Ontario. Final draft, July 2006.

while putting in place mechanisms to compile information on the results and longer-term impacts of CT. The following recommendations are intended to encourage the adoption of CT as an accepted stand management practice in boreal Ontario.

Recommendation # 7

That Corporate MNR expedite efforts to remove or greatly reduce the current obstacles to commercial thinning, including reducing or removing Crown charges on thinned material, and changing its status in the silvicultural guides.

Recommendation # 8

That Corporate MNR encourage the application of CT and coordinate a provincial system to monitor its impacts in boreal Ontario.

The audit team is aware that there is reticence on the part of some of the HFMI Board members to engage in CT, and urges the Board members to reconsider some of the positive outcomes of CT, especially if MNR acts on the above recommendations to create a more supportive climate for CT. The audit team thinks that the longer term benefits that will come when the thinned stands are harvested will be substantial, and notes that the thinned material provided a surprisingly high proportion of sawlog volume.

Suggestion # 5

That HFMI continue to explore and undertake commercial thinning operations on the Hearst Forest when market conditions permit.

The audit team further notes that while the focus of commercial thinning in Ontario tends to be conifers, it has been tested in poplar stands in northwestern Ontario and in the northern US (e.g. Minnesota) where research is continuing (e.g. Gilmore et al 2006)[16]. It would likely be beneficial for MNR to consider supporting pilot tests of CT in poplar.

Areas of Concern Prescriptions

The AOC prescriptions used for the Forest were found to be comprehensive and thoughtful. The 2007 plan employs 24 different prescriptions, building on the 22 used in the 2002 plan. Several of the prescriptions show the insights of members of the planning team, gained from experience working in the Forest over a number of years. For example the prescription for the Water Drainage AOC requires, among other things, that harvesting occur during the day shift and only be carried out by experienced operators.

The 2007 prescriptions contain several not included in 2002. (Some 2002 prescriptions were tailored to circumstances specific to operations scheduled during that plan, such as prescriptions for operations abutting a couple of cottaging lakes). Among the new prescriptions for the 2007 FMP are two for operations near small, and large stick nests. These prescriptions were developed following a recommendation of the 2002 IFA.

The FMP contains one AOC-related exception, which is related to osprey nests. The

[16] Gilmore, Daniel W., Jennifer D. Glenn, Michael E. Ostry, John C. Zasada, and Michael A. Benedict. 2006. Commercial thinning in Small-Diameter Aspen Stands in Northern Minnesota: Study Establishment Report. Northern Research Station, Forest Service, USDA. Technical Report NRS-2. December 2006.

normal AOC prescription restricts operations in the buffer zone (151-300m from active nests) during the period from April 15 to Sept. 1, as osprey are incubating eggs and rearing young during this time. A protocol permitting planting during this time under carefully-controlled circumstances was developed because there were a number of incidences of osprey building a new nest in an area that had been site prepared for planting. A key component of implementation of the exception is the monitoring which is required to be done, to gauge whether the activity has deleterious effects. The monitoring protocol is detailed and appropriate.

The monitoring will take a considerable amount of effort as it basically requires the monitoring individual to be on-site and checking the status of the birds in the nest almost continuously during the planting operations. The protocol notes that the monitoring is best done by a person with wildlife training as detecting a negative response may require some judgment. The protocol further notes that the MNR commits to doing most of the observer work, but that if an MNR observer is unavailable, trained industry personnel will be required to carry out this monitoring. This begs the question as to what sort of training would be sufficient and how the training would be delivered. The protocol does not address these questions. We believe that these questions need to be addressed to ensure that appropriate thought is given to them prior to circumstances arising in which monitoring is required.

Recommendation # 9

That MNR specify training requirements and delivery methods related to implementation of monitoring for the osprey AOC exception and ensure that the monitoring protocol is appropriately amended.

Post-Harvest Retention of Forest Structure

The Natural Disturbance Pattern Emulation Guide (NDPEG) provides direction regarding the retention of post-harvest forest structure. This direction specifies the area to be retained in insular and peninsular patches and as individual dead and live trees. The area to be retained in internal and peninsular patches varies from 10 to 36% depending on forest type. In addition, 25 standing trees per hectare are to remain following harvesting operations in individual blocks. Six of these are to be large, live trees, capable of becoming cavity trees in the future.

For preparation of the 2007 FMP, the planning team relied on a study of historical fires completed in 1997. The study analyzed spatial patterns associated with 13 fires which occurred on the Hearst Forest from around 1920 to 1995. The fires ranged in size from 57 ha to more than 23,000 ha. The analysis for the 2007 FMP built on a previous analysis of the same fires undertaken in preparation for the 1997 FMP. The analysis focussed on the proportion of area retained in insular and peninsular patches. The study found different amounts of area left undisturbed than those suggested in the NDPEG. For some forest types the study found that more area was retained, and for other forest types, less area was retained. The MNR agreed that using local calibration of retention targets was preferable to those suggested by the NDPEG, and so the insular and peninsular retention targets used in the 2007 plan are those based on the Hearst analysis. The audit team agrees that the use of targets based on this local calibration is preferable to using targets based on a considerably larger area, and commends the planning team for their initiative in undertaking this assessment.

Targets for retention of individual trees remain those identified in the NDPEG; data on individual trees were not available for assessment from the fires used in the study.

3.3.8 Plan Review and Approval

As noted previously, the 2007 Hearst FMP was among the first prepared according to the new 2004 FMPM, therefore many of its requirements were still to be interpreted based on actual use. The plan also included other significant requirements not in-place at the time of development of the previous (2002) FMP (e.g. implementation of the NDPEG and use of the technical specifications for the planning inventory required by the Forest Information Manual).

Another new process put in place with the 2004 FMPM was the use of progress checkpoints. As described by the FMPM, progress checkpoints are key steps in the development of long term direction of a forest management plan. Designated planning team members and advisors, as identified by the planning team TOR, must confirm the satisfactory completion of the required steps for each progress checkpoint before subsequent planning steps can occur. The checkpoint system was put into place to attempt to make the planning process more efficient by avoiding situations in which planning decisions and assumptions are revisited throughout the planning process. There are six checkpoints in the planning process: planning inventory; forest units and habitat classifications; base model; scoping analysis; management strategy; and preliminary endorsement of the Long-term Management Direction.

The IFAPP requires a comparison of the planned versus actual plan production schedule. Table 3 compares the planned and actual completion dates for key milestones for the development of the 2007 FMP. The auditors note that planning teams in general have had difficulty in developing approved FMPs on time under the new planning requirements and Table 3 illustrates where the specific delays have occurred for the Hearst FMP.

The planned dates in Table 3 are taken from the Planning Team TOR. The TOR schedule was designed to meet the timelines of the 2004 FMPM and to allow flexibility to produce an approved plan on time while dealing with specific planning hurdles. The schedule was to be used as a guide only and it is important to note that it was not updated during the plan preparation..

The dates of milestone completion in Table 3 came from document approval pages, public consultation records, documentation related to preliminary and final required alterations, and the terms of reference. Some of the dates were difficult to obtain (compared to other audits completed by this planning team) due to record-keeping issues. We recognize that the FMPM does not specifically require the documentation of milestone completion dates. Nonetheless, the planning team should document the key submission, review, and approval dates, particularly ones that define set timelines for public consultation to demonstrate that the required planning process was followed.

Table 3. Planned vs. actual schedule for development of the 2007 FMP.

Planning Stage	Planned Schedule	Actual Schedule
Terms of Reference Approved	15-Jan-05	31-Oct-05
Stage 1) Invitation to Participate		
offer separate native consultation	17-Apr-04	17-Apr-04
DM forms planning team	14-May-04	17-Apr-04
preliminary planning inventory	15-Jan-05	02-Mar-05
final planning inventory	15-Jan-05	06-Jun-05
final planning inventory checkpoint	15-Mar-05	27-Jul-05
invitation to participate	15-Mar-05	16-Feb-05
Stage 2) Proposed Long Term Management Direction		
forest units checkpoint	16-May-05	01-Mar-05
habitat classification checkpoint	16-May-05	13-Sep-05
base model checkpoint	15-Jun-05	30-Sep-05
scoping analysis checkpoint	15-Jul-05	16-Jan-06
proposed management strategy checkpoint	15-Aug-05	03-Mar-06
LTMD presentation to regional director	na	08-Feb-06
review of long term management direction notice	Sept 2005	8-11-Feb-06
30 day public comment period	Sept to Oct 2005	Feb 8-March 10,06
Stage 3) Proposed Operations		
preliminary endorsement of LTMD checkpoint	15-Nov-05	12-Jul-06
30 day advance public and native notice	December 2005	15-Mar-06
Public Information Centres	January 2006	April - 06
60 day public comment period	Jan to Mar 2006	19-Jun-06
Stage 4) Draft Forest Management Plan		
draft submission	15-May-06	15-Aug-06
public and native notice of draft plan review	June 2006	6-9-Sept-06
Information Centres	July 2006	11-Oct-06
MNR preliminary alterations	15-Jul-06	02-Oct-06
60 day public comment period	July to Sept 2006	11-Dec-06
final required alterations	15-Sep-06	11-Jan-07
Stage 5) Inspection of MNR Approved Plan		
final plan submission	01-Nov-06	23-Jan-07
15 day MNR final review	Nov 1-15-06	Jan 23-Feb 6-06
MNR approval of plan	15-Nov-06	06-Feb-07
approved plan inspection notice	15-Nov-06	7-8-Feb-07
30 day public inspection period	Nov 15 to Dec 15-06	Feb 8-Mar 9-07
last opportunity for bump-up	15-Dec-06	09-Mar-07
2007-08 AWS submitted	na	06-Mar-07
2007-08 AWS approved	na	30-Mar-07
15 day AWS inspection Notice	na	March 7-10-07
Operations Commence	na	01-Apr-07

Sources: Plan Summary, Public Consult. Records, Approval Pages, Required Alterations and Terms of Reference, emails, cover letters and personal correspondence.

The period planned for FMP production covered two years and seven months - from May 14, 2004 (the date the planning team was expected to be formed) to December 15, 2006 (the date the final plan inspection was expected to be finished). This provided an extra seven months of production time over the standard two years, and provided 3.5 months of extra time at the end of the process to accommodate delays.

The preliminary planning inventory was submitted on March 2, 2005, which was two weeks after the invitation to participate and not six months prior as required by the 2004 FMPM. The corrected final planning inventory was submitted to the Forest Information Portal on June 6, 2005, and the final planning inventory checkpoint was achieved on July 27, 2005, approximately 4.5 months later than planned. Therefore some of the planned buffer built into the schedule to accommodate unforeseen circumstances was "used up" fairly early in the planning process.

The delay in submitting and finalizing the planning inventory was primarily due to a manual planning inventory update of age classes on approximately 90,000 hectares in three locations on the Hearst Forest. HFMI staff used field cruising and photo interpretation to correct the inventory. The auditors believe the planning inventory delay was justifiable given the benefits of the improvements to the quality of the planning information.

With the exception of the forest units checkpoint, the milestones for Stage Two of planning (Long Term Management Direction) were all achieved later than planned, mainly due to the planning inventory revisions. The LTMD checkpoint was achieved on July 12, 2006, when the Regional Director provided a preliminary endorsement of the LTMD, which was approximately 8 months later than planned. HFMI and MNR District staff explained that there was some confusion over the checkpoint requirements and what constituted checkpoint achievement. They had assumed that a positive result from the presentation to the Regional Director result meant that the proposed management strategy had been approved and that the checkpoint was attained. However, MNR Regional staff did not consider completion of the presentation sufficient for checkpoint completion, as some important elements of the plan (i.e. desired and target levels for objectives) were not yet finalized. The missing pieces were the main reasons for MNR Region delaying the proposed management strategy and LTMD checkpoints.

As noted earlier, the 2007 FMPs were the first to use the 2004 FMPM planning process so there was a fair bit of uncertainty over the new planning requirements and process. Overall, HFMI and MNR District staff indicated that the checkpoints were very difficult to achieve as their impression of milestone completion was often not consistent with that of MNR Regional staff. Although there was one MNR Regional staff member with the responsibility of coordinating checkpoint approval, there were four different MNR Region staff who provided the checkpoints and the process of providing checkpoint approval did not work as intended. Despite significant effort by MNR Region to provide training, spell out the checkpoint requirements and to keep the planning team on schedule, HFMI and MNR District staff still had difficulties due to the newness of the planning process.

There is a relatively strong difference of opinion between staff at MNR's Regional office and HFMI staff regarding the role that the checkpoint system played in affecting the planning process. While the checkpoint approach seems logical, different perceptions regarding the effectiveness of the system's implementation suggests that there are kinks that need to be worked out. Given that 2007 plans are the first to employ this system, it's not surprising that some refinement may be needed. Based on the experience of the audit team, we note that the development of plans for other SFLs are experiencing similar challenges.

Suggestion # 6

Corporate MNR in collaboration with MNR Region and SFL holders should review the use of the checkpoint system and identify opportunities to improve its use.

Some of the public review components of the FMP planning process occurred out-of-sequence, relative to the initial endorsement of the LTMD. The information centres to review the proposed operations occurred prior to verification that all LTMD checkpoint requirements had been met. The public notice went out on March 15, 2006, and information centres were held on between April 19 and April 22, 2006, and the 60 day public consultation period ended on June 19, 2006, all prior to the preliminary endorsement of the LTMD checkpoint. This is contrary to FMPM requirements that the preliminary endorsement of the LTMD be finalized before public input is sought.

To help address the fact that the proposed management strategy and the LTMD were not finalized prior to going to the public, the planning team made the proposed management strategy available at the proposed operations and draft plan information centres. As well, a copy of final LTMD products was mailed to all parties who commented on the plan to ensure they had a chance to see the final products.

The draft FMP was submitted on August 15, 2006, three months later than planned. The MNR review was completed on October 2, 2006, 47 days later, and more quickly than the 60 days normally allotted by the FMPM.

The 60 day draft plan public review was completed on December 11, 2006 and the final required alterations were provided to HFMI on January 11, 2006 a couple weeks beyond the normal 15 days allotted. The required alterations documentation does not clearly identify all reviewers in the summary cover sheet nor does it provide an explanation of how the required alterations were addressed as required by the FMPM. Although it is likely not worth amending the present FMP for these items, we have included a recommendation to ensure that these shortcomings not recur in the next FMP.

Recommendation # 10

That MNR and HFMI ensure that the final list of required alterations prepared for the next FMP includes an explanation of how all required alterations have been addressed.

HFMI submitted the final plan on January 23, 2007, approximately 3 months later than the TOR schedule, and MNR approved the plan on Feb 6, 2007 after the 15 day MNR final review. Overall, the three to seven month delays through the course of the planning process were mainly a function of providing an improved planning inventory, understanding and meeting planning requirements of the new FMPM, achieving the various checkpoints, and conducting and incorporating extensive public input. Despite these significant challenges the planning team was successful and should be commended for achieving an approved plan on schedule for April 1, 2007.

Two components of the planning process which are intended to provide opportunities for public review (Stage 3 of FMP preparation, and the review of the AWS) were initiated prior to the documents intended for public review being fully completed (i.e. approved by

MNR). This approach, while useful in addressing delays in planning and streamlining the planning process means that the public is reviewing documentation before is its completed or approved. If public comments are received on a part of a document which is concomitantly receiving MNR comments, the planners would then presumably need to resubmit the document for public review or otherwise engage in some process which would let the commentors know of the subsequent MNR-mandated changes to the document.

Recommendation # 11

That MNR and HFMI ensure that the required FMP and AWS components are available for public review prior to notices being issued, starting review periods and holding information centres.

The auditors found that records of the key development dates such as provision of preliminary alterations, final alterations, the dates of start of operations and others were difficult to obtain or were not recorded. Similar issues also existed for records relating to the AWSs, amendments and revisions. The closer informal relationship between the MNR and company (which has many positive aspects) seemed to precipitate this lack of formal record-keeping. Staff from both the MNR and the Company have indicated that they keep extensive records mainly in the form of electronic files and e-mails. However the auditors had difficulty verifying these records.

The Forest Information Portal (FI Portal) has proven effective in assisting in the exchange of SFL-related data and information between the industry and MNR. MNR is using the FI Portal to track submissions, record review comments and revisions, and manage approval status. However, the current information summaries available from the FI Portal can often be difficult to interpret as the Portal does not accurately display all the information which has been entered.

Corporate MNR has indicated that the FI portal has continuously evolved to encompass an expanding list of needs. MNR is currently investigating the use the FI Portal to fulfill IFA business requirements and expects enhancements to be in place by the spring of 2008.

Suggestion # 7

The Company and MNR District should record key FMP and AWS submission, review and approval dates. Corporate MNR should continue to review and improve the FI Portal summaries and functionality so they clearly document the submission, review and approval status of all planning documents.

3.3.9 Plan Amendments

FMP amendments and AWS revisions originated most commonly from HFMI or the Overlapping Licensees, but occasionally from the MNR. In the normal process, they are submitted to the MNR Area Forester who coordinates MNR District review and approval.

There was an average of nine amendments/yr, ranging from a high of thirteen in 2002-2003 to a low of five in 2003-2004. All amendments were administrative. There was an

average of 31 AWS revisions/yr, ranging from a high of 38 in 2003-04 to a low of 26 in 2005/06. Figure 6 provides a summary of the reasons for the amendments.

MNR maintains an amendment review sheet that tracks key information related to each amendment. The MNR District Office keeps complete copies of all amendments and forwards them to the other MNR offices where additional plan copies are kept (e.g. MNR's Regional Office). HFMI staff keep their own amendment summary list. Complete paper or digital copies of all amendments are not kept on file at the HFMI office. Once the amendment or revision is approved by MNR, HFMI revises its composite- and operational-scale Areas Selected for Operations maps and files the amendment or revision approval pages with the FMP or AWS. This is a very good system as older copies are not kept on file; map users can readily ascertain the status of the map (i.e. its vintage relative to plan amendments or AWS revisions) and the amendment or revision areas are specifically identified.

The MNR area forester reported that in the last few years of the audit period all amendments and AWS revisions are now filed digitally on the MNR District server, so a complete digital record of amendments and revisions is maintained. The MNR management forester also e-mails notification of approval to the HFMI, the overlapping licensees, and the MNR compliance staff.

The FMP amendments were accumulated and presented to the LCC for their input and assistance in classification. Overall the amendments appeared to be classified properly.

As with the FMP amendments, the Company did not have complete records of all AWS revisions. Some revisions were missing from its records, there were some duplicate numbers in its tracking system and there was a lack of revision details and maps in the Company's office.

Recommendation # 12

That HFMI ensure that that complete copies of all amendments and revisions are kept in its office. The complete copies should include the original proposals, the reviews, the final approved amendments including maps, the approval sheets, and the public and LCC reviews.

The low number of amendments and AWS revisions, and the fact that all amendments were administrative reflect well on the quality of the FMP. Figure 6 shows most amendments were related to harvesting, access, water crossings or adjusting AOC prescriptions. Amendment review and approval averaged 20 days, with most approved with the 15 days required by the FMPM for administrative amendments.

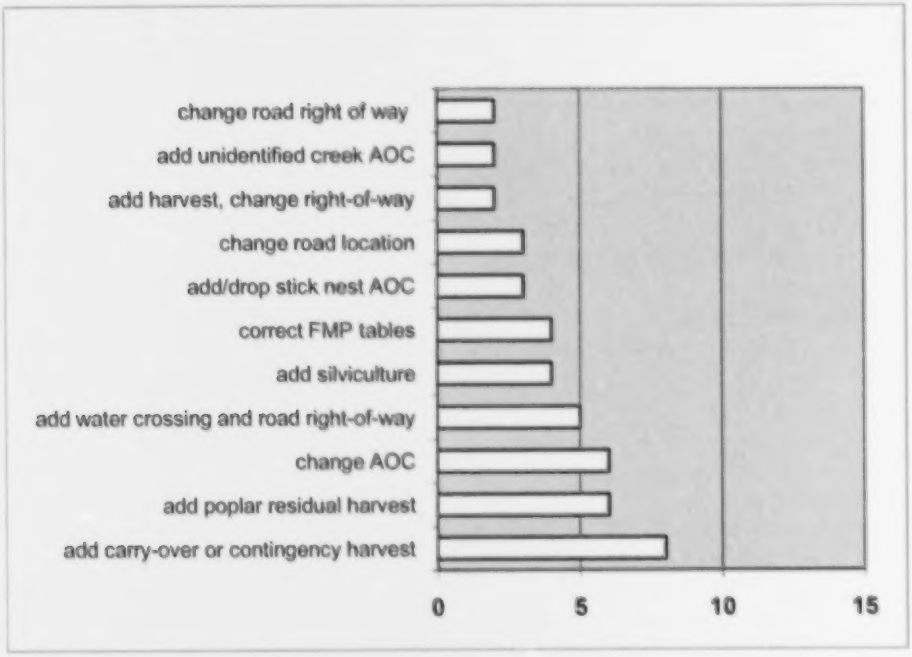

Figure 6. Reasons for amendments to the 2002 FMP.

3.3.10 Contingency Plans

There were no contingency plans during the audit period.

3.3.11 Annual Work Schedules

Table 4 provides a summary of the AWS submission and approval results for the audit period. The first three AWSs were prepared under the 1996 FMPM, while the last three AWSs were prepared under the 2004 FMPM.

The deadline for submitting a draft AWS is December 31. HFMI has indicated that this deadline is onerous due to the winter operations priorities and Christmas holidays. Given that little/no MNR review occurs until mid January, the present seems unnecessarily inconvenient. An AWS submission deadline of January 15 could still accommodate April 1, approval.

Suggestion # 8

Corporate MNR should consider revising the AWS submission deadline from December 31, to January 15.

The AWS submission is followed by a 30 day MNR District review period, and final approval is required by March 16 to allow 15 days for the public to inspect the approved AWS prior to operations commencing on April 1st. The versions of the AWSs on file at the HFMI office were used to compile Table 4, however information was requested from MNR to fill the gaps.

Table 4. Summary of AWS submission and approval timelines.

AWS	Due Date	Draft Submission	MNR Review Complete	Final Submission	Final MNR Review	Final Approval	AWS AD in Paper
2002-03 AWS	31-Dec-01	unknown	unknown	12-Mar-02	unknown	20-Mar-02	unknown
2003-04 AWS	31-Dec-02	unknown	unknown	25-Feb-03	unknown	21-Mar-03	unknown
2004-05 AWS	31-Dec-03	unknown	17-Feb-04	8-Mar-04	unknown	25-Mar-04	10-Mar-04
2005-06 AWS	31-Dec-04	24-Jan-05	1-Mar-05	unknown	unknown	1-Apr-05	4-Mar-05
2006-07 AWS	31-Dec-05	11-Jan-06	6-Mar-06	16-Mar-06	unknown	27-Mar-06	8-Mar-06
2007-08 AWS	31-Dec-06	6-Mar-07	unknown	unknown	unknown	30-Mar-07	7-Mar-07

Table 4 could not be completely filled out as it was very difficult for the auditors to define the draft submission, MNR review completion, final submission and final MNR review timelines as this information is not kept with the AWSs. HFMI and MNR staff were able to retrieve some dates from their email records.

The submission dates for the first three AWSs were not available. The 2005-06 and 2006-07 AWSs were submitted two to three weeks after the due date. The 2007-08 AWS could not be submitted until March 6, 2006 when the final 2007 FMP was available. It took longer than the 30 days allotted by the FMPM for MNR to complete its reviews. HFMI was able to provide the final submission in less than the 30 days allotted. Final approval via District Manager sign-off was in late March in all cases. However, the ads for public review of the AWS ads all went out at the beginning of March prior to the AWS approval. As noted in Section 3.3.8, by putting out public review ads prior to the final approval of the AWSs, the public may not have always had the final approved AWS available for review. Of note is the 2006-07 AWS where public notice went out prior to the final AWS submission. However, we note that another reason for the late District Manager signature was that this was a formality that was completed when the District Manager was available and the date did not always correspond with the date that the MNR District was satisfied they had an approved AWS. Recommendation # 11 in Section 3.3.8 addresses this issue.

HFMI typically submits AWSs which meet the required elements. MNR's review of the AWS usually resulted in minor text, map and table edits, however MNR review documentation was difficult to locate as it was often hand written notes or emails and these were not always filed in the AWSs. Annual compliance plans and fire plans were also submitted and approved as part of the AWS. Typically the fire plans, slash pile burning and spray plans were submitted after approval (as is permitted under the FMPM) and were appended into the AWS.

The new (i.e. in the 2004 FMPM) advanced planning requirements for water crossings were met as the 2005-06 and 2006-07 AWSs. The 2005-06 AWS planned water crossing installations and removals for a two year period, however the second year could not be included for the 2006-07 AWS as the 2007 FMP had not yet been completed.

The auditors compared the proportion of planned harvest areas included in each AWS during the audit period. Roughly two to two-and-a -half years worth or wood is included

in each AWS to provide operationally flexibility for operators in dealing with seasonal harvests, market fluctuations, access, and capture poplar residual areas.

Good efforts are made by HFMI and the MNR to identify, contact and consult persons who may be directly affected by AWS operations. Notices are also provided to aboriginal communities, band councils and other native organizations, mining claim holders, trappers, and private land owners. Complete versions of the public consultation records were normally kept only with the MNR version of the AWS.

3.4 PLAN IMPLEMENTATION

3.4.1 Areas of Concern

The IFAPP directs auditors to examine whether AOC protection measures were implemented as in the approved prescriptions, and that the prescriptions were suited to the specific site conditions. Field inspection of AOCs revealed uniformly appropriate AOC prescriptions and generally very good implementation of the prescriptions.

One of the areas inspected during the site visit portion of the audit was a series of operations just north of Pivabiska Lake (Audit Site 11). In the 2002 FMP a specific AOC was developed for this area due to concerns expressed by the community of cottagers who use the lake. The AOC prescription contained a number of measures intended to alleviate cottagers' concerns for safety and address their desire to ensure that access is restricted following the completion of operations. To that end, the AOC prescription contained a requirement to remove watercrossings along a branch road known as B-1 and to make the road impassable. Inspection of the area showed that the water crossings had been removed, but the road had not been rendered impassable. Berms placed with the intent of restricting access were not effective – numerous tire tracks around the berms and on the restricted side of the berms attested to this. It also appeared that the streams from which water crossings had been removed had been forded with vehicles. A resident of the cottaging community interviewed by the audit team reported that rifle shots could be heard from the restricted side of the area. Given that one of the reasons for restricting access was to address the residents' concerns regarding hunting, the audit team believes that access restriction measures need to be improved in order to fulfill the original intent of the AOC prescription.

Recommendation # 13

That the Company redevelop the measures intended to restrict access along road B-1 to ensure that the original intent of the AOC prescription is fulfilled. The Company and MNR should subsequently monitor the success of the measures.

Stream Classification Protocol

As for most northern MNR Districts and SFLs, thermal regime information for most streams on the Hearst Forest is not known[17]. MNR's fish habitat guide requires that cold water streams receive a higher degree of protection than warm- and cool-water streams based on the presumed sensitivity of the thermal characteristics of cold water streams to forestry operations. The fish habitat guide permits cut-to-shore operations based on

[17] The audit team has conducted more than 20 audits in boreal Ontario and has not encountered a forest for which thermal regimes are known for most streams.

thermal regimes with cold water bodies receiving a higher degree of protection. Furthermore, the timing window for in-stream operations (i.e. bridge/culvert construction) is considerably narrower for cold water streams than it is for warm- and cool-water streams, decreasing companies' flexibility with respect to constructing water crossings. Some SFLs use a precautionary approach in which waterbodies with unknown thermal regimes are assumed to be sensitive. Several SFLs have developed protocols for estimating the thermal regimes of streams based on the thermal characteristics of connected waterbodies, physical features of the surrounding terrain, surrounding vegetation etc.

For the Hearst Forest, staff at MNR's District office and HFMI have developed a protocol for identifying where cut-to-shoreline prescriptions may be applied. The protocol is designed to filter out areas unsuitable for such operations as an initial step and then through a series of subsequent steps identify those for which such prescriptions may be permitted. The protocol is well considered and should prove to be useful. It is not realistic to suppose that a sufficient amount of funding would be available to characterize all the waterbodies in the SFL using more direct means (i.e. fish species surveys, comprehensive measurement of thermal profiles) so such an approach is practical. However, more precise thermal information should continue to be gathered based on priorities associated with forest management needs and the risks associated with incorrect protocol determinations. Recommendation #6 in Section 3.3.5 directs the MNR to provide adequate amounts of funding for values collection so that high-priority streams can be comprehensively assessed.

3.4.2 Harvest

The majority of the harvesting activities are undertaken under overlapping licences held by Lecours Lumber and Tembec, the two major partners in HFMI. These companies are primarily interested in the conifer component of the harvest. In the last several years, these companies have tended to harvest the conifer and leave the hardwood standing, since demand for OSB material has declined due to lockouts and reduced operating levels at consuming mills. When the veneer in the remnant hardwood is of suitable quantity and economically attractive, it will be harvested by Columbia Forest Products. Other harvest operators on the Forest include Marcel Lacroix and Amik Logging (formerly known as Mammamattawa), which are both required to sell their conifer to either Lecours or Tembec. Both have allocations that are embedded as special conditions in Appendix F of the SFL.

All of the harvest operations on the Hearst Forest are made using the clearcut system. Most of the mixedwood harvest is conducted in two passes; as of year four of the 2002 FMP period, 42% of the harvest area had been cut in this manner. A total of 47% of the harvest area had been cut using CLAAG (Careful Logging Around Advanced Growth), which also is a variant of the clearcutting system chiefly used on lowland sites. Lastly, there were 3,400 ha of group seed tree harvest (representing 11% of the total harvest area), also used on lowland sites.

The Hearst Forest is one of the very few forest management units in Ontario where most of the harvest area that is planned in an FMP term is actually cut, and this has been the case for the past three plan terms. Figure 7 shows what proportion of the area planned for harvest in each plan period was actually cut, and the proportion of the planned volume that was actually obtained. The results for the 1992 TMP period are interesting,

since the actual harvest and by-pass area was 111% of the planned depletion level. At the time, licensees were able to harvest as much as 110% of the allowable harvest area, which accounts for the harvest in excess of 100%. The actual harvest (including by-pass) in the current plan period is expected to be very close to 100% of the planned area, based on the results from the first four years.

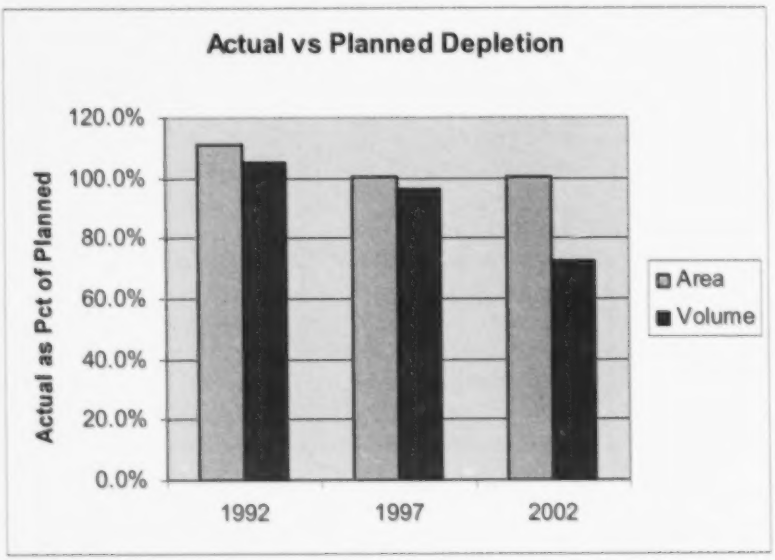

Figure 7. Actual depletion area and volume as percentages of planned levels.

As Figure 7 shows, the actual volume harvest has declined markedly as a proportion of the planned level. This is almost entirely due to increases in planned hardwood harvest volumes that were not realized. This is shown in Figure 8, which compares the average annual planned harvest volume with the average actual harvest volume during the first four years of the 2002 FMP period. The conifer harvest volumes that have been obtained closely match the planned levels, whereas poplar and birch harvest volumes are well below planned levels. Previous planned poplar harvest volumes were on the order of 33,000 m^3/yr in the 1992 Timber Management Plan period and 105,000 m^3/yr in the 1997 FMP period. In both periods, actual poplar volumes averaged close to 80,000 m^3/yr. In the 2002 FMP, the planned poplar volume was raised to 222,000 m^3/yr, while an average of only 60,000 m^3/yr was realized. Similarly, but at an order of magnitude less, the planned white birch harvest was increased substantially in the 2002 FMP period but the levels achieved were insignificant. These increases in planned levels were made to account for anticipated demand increases, and also in the belief that the poplar volume was present.

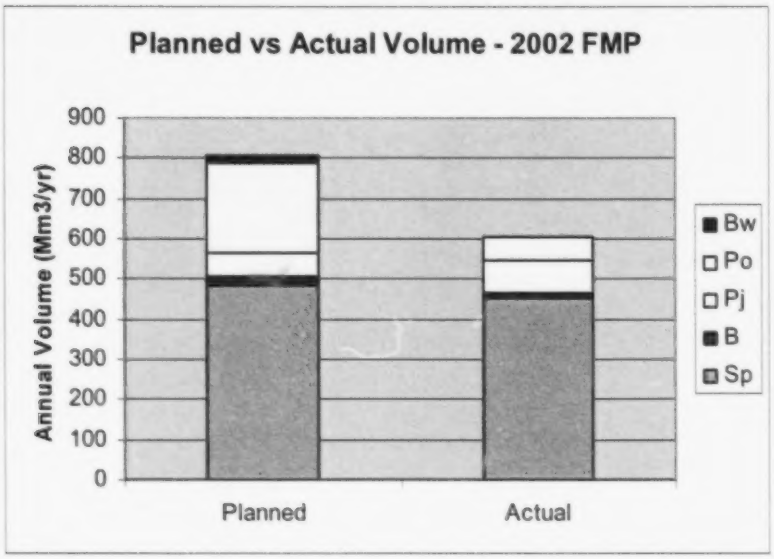

Figure 8. Planned and actual harvest volume by species in the 2002 FMP period, annualized.

The most vexing issues on the Hearst Forest are the nature and utilization of the poplar supply. This was a major issue that was raised in the previous IFA, and attracted several recommendations. Hearst Forest is capable of growing very high quality poplar, and in many stands the percentage of veneer that can be obtained is between 25 – 30%, which is very high compared to the rest of Ontario. However, whereas in past plan periods the harvest volume has been reasonably close to the planned level, there was a significant shortfall in the 2002 FMP period. The shortfall largely reflects a doubling of the planned volume, while the actual harvest volume declined somewhat. There are questions whether the planned volume was actually present where it was expected to be, and there are on-going issues related to the utilization of poplar. A classification of the issues surrounding poplar that seems to be helpful is:

Informational Issues:

- The FRI is often inaccurate in estimating the volume of poplar present in a stand;
- the FRI was never designed to support accurate estimates of species volume, let alone the volume of veneer or other wood products by stand or harvest block, and so it does not perform this function very well;
- the FRI does not distinguish balsam poplar from trembling aspen;
- it is estimated that 25% of the poplar volume on the Forest is balsam poplar. However, the presence of balsam poplar is variably distributed, and so it is not accurate, especially in an individual block, to assume that a quarter % of the poplar volume in every stand is balsam poplar.
- the FRI may have accurately estimated the species composition of a stand but in the time since the inventory was conducted, poplar volumes may have declined more than forecast (pointing to overestimates in the older stages of the yield curves).

Economic Issues:

- stands may be by-passed when OSB markets are poor if they have too high a percentage of poplar or if they have marginal hardwood,

- stands cut under the veneer select criterion will not yield the projected volume of poplar since the non-veneer portion of the stand will be left in the bush, either uncut or cut (Figure 10);
- when some of the stands that were harvested, the poplar market was poor, or prospective purchasers declined to buy, and the poplar was cut and left in the bush;
- second-pass harvesting – it is not clear how many stands have been given the first pass (conifer removal) and are waiting for the second pass.

The severity of the inventory problems was highlighted by two analyses. District MNR staff reviewed poplar harvest data from 2003/04 and 2004/05, which were the two years during the 2002 FMP period that had good OSB markets. MNR estimated that the recovery ranged from 30 – 70% of the volumes predicted by the FRI and yields used in planning. These figures do not include allocated areas where the poplar stands were essentially in barren and scattered condition, and were declared bypass, without any harvesting. MNR concluded by estimating that recovery would likely have averaged 50% of planned volumes during those two years.

Because of the problems with the inventory, there is some question about how much poplar volume was potentially available on these sites. The Company compiled data from many of the poplar blocks allocated during the 2002-2007 FMP period, and estimated that 125,000 m^3 of poplar had been left behind, either as standing residuals, in rights-of-way, or in a few cases at roadside. This is equivalent to roughly half of the hardwood volume that was actually harvested, and suggests that roughly one-third of the available poplar volume was not being harvested.

Because the Company is expected to obtain a new inventory in time for use in the development of the operational plan for the second half of the 2007 FMP (see Section 3.3.5), there are no recommendations related to the informational issues associated with poplar. The economic issues are reviewed in the discussion of commitments, in 3.8.5 of this report.

The uncertainties around hardwood utilization have led to a continuation of some level of two-pass harvesting on the Forest, where typically the conifer timber is removed in the first pass and the hardwood component is removed as the second pass. It was not clear how much of the harvest is conducted in this way, and given the economic stresses on the forest sector today, and the impetus to reduce costs, it is a measure of the severity of the utilization issues that two-pass harvesting persists on the Hearst Forest. We were told that the two major conifer users on the Forest – Lecours Lumber and Tembec – had moved away from the two-pass system during the middle years of the 2002 FMP period, but the collapse in OSB hardwood demand in 2006 and 2007 led to a return of two-pass harvesting. Besides the additional cost of making two harvest passes, two pass harvesting may lead to the following outcomes:

- it is not clear when the second pass will be made, leading to planning uncertainty;
- the second pass may not be made for several years, which allows brush and hardwood to capture the site (Figure 9), requiring either a revision in the silvicultural treatment or intensive silviculture to combat the well-established competition (another added cost);
- the second pass may never be made and sometimes the poplar is cut and left in the bush and other times it is left standing .

Figure 9. A former mixedwood waiting for a second pass harvest.

Figure 10. Harvested poplar from which veneer has been taken.

All of these outcomes lead to increased costs, not only for harvesting but for planning, more intensive silviculture, conversion of mixedwood stands to hardwood (and the attendant loss of conifer), and the lengthening of the rotation, which is an effective reduction in the productivity of the Forest.

While the audit team believes that two-pass harvesting should be discontinued as soon as market conditions, or other institutional conditions, permit, we recognize that in the absence of demand for OSB hardwood, a two-pass approach is justifiable as the most palatable option for accessing the conifer component in mixed stands.

Another manifestation of the lack of demand for OSB poplar, coupled with continued demand for poplar veneer, is that harvesters have been authorized to cut to "veneer select" standards, which essentially means that the veneer is removed and the remainder left on site. Again, economic conditions have forced this situation and the audit team feels that it is a justifiable short-term measure in that it permits two veneer mills to continue to operate. It is anticipated that the current downturn in OSB poplar demand might ease within a couple of years, at which point better utilization can be practiced. If this was to become a permanent situation, it could lead to systematic highgrading of the poplar resource, which would be unsustainable.

Snags and Residuals

The requirements of the NDPEG guide did not come into force until plans due for approval in 2003 and 2004, so the 2002 FMP was not obliged to implement the measures for retention of snags and residual area identified in the guide. Nonetheless the 2002 FMP contained direction for retention of residual area and snags which approximate that provided in the NDPEG.

In our inspection of the Forest we found no instances in which there appeared to be a paucity of retained structure. We found the nature and distribution of snags, residual trees and residual patches to be consistent with the targets identified in the 2002 FMP.

3.4.3 Renewal

Overall, for the sites that were observed in the field during the audit, the silvicultural treatments were consistent with the silvicultural ground rules and forest operational prescriptions. The boundaries and coverage of site preparation, planting, and tending projects were good. The treatments were well-matched to actual site conditions and appeared to be effective in meeting the silvicultural objectives. With one exception the treated areas were appropriately mapped and reported in the ARs. The collaborative working relationship between the MNR and HFMI is a great asset in ensuring an effective renewal program.

Silvicultural Achievements

Table 5 compares the forecast targets for renewal activities (natural and artificial regeneration, site preparation, and tending) with the actual achievements for the 2002 planning term for the Hearst Forest.

Table 5. Silvicultural accomplishments for the 2002 FMP term as a percentage of the planned activities for the Hearst Forest.

Activities	Actual area 2002-2005 4-year total area (ha)	2002-2007 FMP-25 forecast area (ha)	Projected % of forecast at 5 yrs
Regeneration			
Natural Regeneration			
CLAAG / Group Seed Tree	17,395	24,138	90%
Poplar Natural	1,970	1,921	128%
Subtotal Natural	19,365	26,059	93%
Artificial Regeneration			
Planting - Forest Renewal Trust Program	12,655	14,722	107%
Planting - Forestry Futures Trust Program	2,220	n/a	
Subtotal Artificial - Forest Renewal Trust Program	12,655	14,772	107%
Subtotal Artificial - Renewal + Forestry Futures Trusts	14,876	14,772	126%
Total Regeneration - Forest Renewal Trust Program	32,020	40,831	98%
Total Regeneration – Renewal + Forestry Futures Trusts	34,241	40,781	105%
Site Preparation (SIP)			
SIP - Forest Renewal Trust Program	3,689	14,413	32%
SIP - Forestry Futures Trust Program	2,490	n/a	
Subtotal SIP - Forest Renewal Trust Program	3,689	14,413	32%
Total SIP - Renewal + Forestry Futures Trusts	6,179	14,413	54%
Tending			
Cleaning	10,659	12,578	106%
Spacing, pre-commercial thinning, improvement cutting	252	n/a	
Total Tending	10,911	12,578	108%

The projected forecasts are based on the four-year area totals plus the average annual achievement of those four years to give a projected five-year total. For the 2002 FMP term, the achieved levels of natural regeneration, site preparation and artificial regeneration are in line with the FMP forecasts. Natural regeneration was proportionally lower than planned (93%) but the difference was made up by an increased level of artificial regeneration (107%), for a total regeneration effort that was 98% (or 105%, when activities funded by the Forestry Futures Trust are taken into account). About one-third of the area that was artificially regenerated was site prepared, and the remaining area was direct planted without site preparation. Approximately 34,241 ha were regenerated during the first four years of the FMP term, 115% more than the total area harvested of 29,737 ha.

Actual tending levels for the first four years of the FMP term were projected to be ahead of the forecast at 108% of the total five-year target. This increased tending effort is a reflection of the rich site conditions on many of the treated areas, as well as the tending that was conducted on backlog Category 2 Lands. Overall, our field assessments

indicated that the amount of area that was tended was appropriate for the sites and site conditions that we reviewed.

Natural Regeneration

During the audit period, most of the natural regeneration implemented on the Hearst Forest on clearcut sites was for intolerant hardwoods (trembling aspen and white birch) on upland sites and for black spruce on lowland sites. The natural regeneration areas in mixedwood and hardwood forest units that we observed in the field appeared to be consistently successful, with one exception. We visited one site where there had been a considerable canopy of residual aspen and birch remaining after the first harvest. The hardwoods had subsequently been removed in a second pass. When it became clear to HFMI, through field inspections, that that hardwood natural regeneration would not be successful, the site had been mechanically site prepared and planted with spruce. This illustrates well the concern expressed by the previous audit team about the quality and quantity of natural regeneration on sites where the hardwood species have been left standing due to lack of markets. If this results in the need for artificial treatment to supplement the regeneration, the costs for renewal of these sites could be increased substantially.

Natural regeneration of lowland black spruce is facilitated by means of CLAAG or the use of group seed trees (GST). The choice between CLAAG and GST is initially made at the planning stage, but can be changed on site by the operators, depending on stand conditions. Any changes to the FOPs for an area are communicated to HFMI to ensure accurate reporting. HFMI conducts operator training to assist operators in making the correct choices. The CLAAG and GST prescriptions that we reviewed in the field were well done, with good retention of advance growth and unmerchantable stems for CLAAG and proper spacing and sizes of groups of seed trees for GST.

Artificial Regeneration - Tree Planting

Species choices for tree planting were generally well-matched to the observed site conditions. HFMI has done a good job of directing species within planting projects to site-specific terrain. During the 2002 -2007 FMP term the Company planted over 30 million trees on the Hearst Forest, exceeding the forecast of 28.7 million trees. Extra tree planting was done to regenerate backlog area in Category 2 Lands using funding from the Forestry Futures Trust. The relative proportions of black spruce, white spruce, and jack pine that were planted were appropriate for the forest units on the harvested area and were consistent with FMP objectives.

Table 6. Tree planting statistics. Totals include trees planted with funding provided from both the Forestry Renewal and Forestry Futures Trust Funds. (80% of planned levels are shown to facilitate comparison with four-year totals)

Species	Number of trees: 80% of 2002 FMP 5-year forecast	Actual number of trees planted (4 years)	% of forecast (4 yrs)
Sb	11,480,080	16,640,142	145%
Sw	7,653,386	7,933,326	104%
Pj	3,826,694	5,775,893	151%
Total	22,960,160	30,349,361	132%

Site Preparation

The choices of site preparation treatments that we observed in the field were appropriate for the site conditions, and the coverage and quality of the treatments was good. During the audit period, site preparation was conducted with a variety of implements including winter shearblade on lowland sites, and trenchers or angle blades on upland sites. Chemical site preparation was also conducted on competition-rich sites.

Prescribed burning was planned for 5,486 ha during the FMP term, but due to a number of factors, no burning was implemented. HFMI located an appropriate site of sufficient size to be economically feasible, and worked with MNR to determine the allocation of costs and responsibilities for the proposed burn and prepare a burn plan. The site was also pre-treated with herbicide to ensure suitable fuel conditions. For the first two years after the contract with MNR was signed, suitable weather conditions to conduct the burn did not occur. In the third year, vegetation conditions on the site would have required a follow-up herbicide treatment; at that point, with potential costs mounting, the risk of not obtaining suitable weather conditions was judged to be too great to proceed with the burn.

The audit team believes that prescribed burning is a very good renewal option for many sites in the Hearst Forest, and encourages both MNR and HFMI to continue to promote prescribed burning for silvicultural purposes. There are many benefits to this treatment, such as increased growth and yield, more natural vegetation succession and species associations, reduced hazard for insect infestations and pathogens, and in some cases, depending on site conditions, reduced tending needs. Prescribed burning is also touted by the NDPEG as being an important tool in emulation of natural disturbances. In addition, prescribed burning may be important in providing forest conditions preferred by caribou[18,19]. Barriers to implementing prescribed burns include uncertainty about costs and the risk associated with obtaining suitable weather in any given year.

Partnerships between MNR, forest companies, and other stakeholders, as well as the development of innovative means to reduce costs may form part of the solution. Examples would include the MNR's Aviation and Forest Fire Management (AFFM) development of low-complexity prescribed burn training worker and boss training in 2003 and 2006. It is possible that through operational or research-oriented partnerships, forest companies may be able to leverage alternate sources of funding to help offset a portion of the costs associated with prescribed burn planning, or with the preparatory treatments that may be required.

Revisions to the prescribed burn operational policy and planning manual are also expected to be released for public review/comment early in the year (2008), to recognize the move of AFFM into MNRs Field Services Division from Forest Management Division. According to MNR "This update should further promote prescribed burning to attain ecological, hazard reduction and resource management benefits in Ontario. With this revision, industry concerns over uncertain costs and perceived risk will be addressed through updated planning and partnership opportunities".

[18] Ontario Ministry of Natural Resources Hearst District, and HFMI. 2006. Prescribed Burning: An Essential that No One Will Pay For. Conference Poster

[19] Schaefer, J.A. and A.O. Pruitt, 1991. Fire and Woodland Caribou in Southeastern Manitoba. Wildlife Monographs #116

Because of the potential for these initiatives, we offer no specific recommendation at this time. Locally, HFMI and MNR can continue to work together to develop and encourage innovative mechanisms and partnerships for conducting prescribed burns for silvicultural purposes. At a corporate level, we strongly encourage MNR to continue to work with the forest industry and with MNR District and Regional staff to further streamline planning, and to promote and encourage the use of prescribed burns to achieve silvicultural objectives

Site Disturbance

Most harvested areas we viewed in the field had minimal rutting, however, one lowland site we observed had significant rutting on a portion (visually estimated by the audit team at 10-15%) of the total harvest area. HFMI staff explained that this was due to the late freeze-up in the winter of 2006/07. Most of the rutting occurred in early winter before the ground was frozen sufficiently to withstand the machine traffic. Although this appeared to be an isolated incident, HFMI does not have any specific procedures to address this particular situation.

Recommendation # 14

That HFMI develop and implement procedures to minimize undue site disturbance on lowland sites in years when the ground freeze-up is late.

Consideration of site disturbance is built into HFMI's operator training and compliance programs. HFMI's attention to this issue is reflected in the generally good performance we observed in the field. However, there is room for improvement in the manual used for training of its operators. Several relatively new publications (e.g., FERIC's site disturbance manual, and the Manual available from the Lake Abitibi Model Forest) contain material that would enhance its content.

Suggestion # 9

HFMI should consider updating the Site Disturbance Training Manual used for training its contractors.

3.4.4 Tending and Protection

The Company conducts pre-tending assessments, the results of which are used to identify areas within the blocks allocated for tending that do not require treatment, as well as areas where natural regeneration of hardwoods is the most appropriate method of renewal.

Most of the cleaning treatments conducted by HFMI are done by the aerial application of herbicides, including glyphosate on upland sites, and 2,4-D for the control of alder on lowland sites. During the audit period a small proportion of sites were cleaned manually. In general the effectiveness of the tending treatments was good. There were two non-compliances for over-spraying that occurred during the audit period, both of which were reported properly. Appropriate sites had been selected for tending treatments, and all sites that we assessed required tending to meet silvicultural objectives. Tending plans

for herbicide applications had been prepared by the Company as per the regulatory requirements. All aerial herbicide applications conducted during the audit period were done using helicopters or fixed-wing aircraft equipped with Global Positioning Systems (GPS) to ensure accurate delivery of the herbicides. The cleaning projects observed by the Audit Team in the field had good boundary control and coverage.

HFMI has experimented with conducting alternative chemical or mechanical site preparation (e.g., reduced density mechanical corridors or "striping" of herbicide applications), in combination with lower density planting of conifers, to promote management of mixedwood sites.

The Hearst Forest is characterized by a high proportion of very rich sites, on both uplands and lowlands. Most of the upland sites that are artificially regenerated to conifers require cleaning to control competing vegetation, which is normally done two years after planting. Rich lowland sites also usually require cleaning. We did observe a few lowland and upland-lowland transitional sites that were in need of tending to retain the conifer regeneration (Figure 11). With a large cleaning program, HFMI staff must sometimes prioritize sites according to greatest need in order to operate within silvicultural budgets. Company staff also indicated that tending assessments on lowland sites tend to be behind schedule due to priorities. These are usually lower productivity sites, and the Company indicated that they were willing to risk a small loss in growth due to a lower level of investment, but the intent is to schedule these sites for treatment when feasible.

Recommendation # 15

That HFMI develop a more formal system of tracking tending needs on lowland sites from year to year, to ensure that any sites requiring cleaning are treated at the earliest opportunity.

HFMI conducted pre-commercial thinning on one jack pine site (a wildfire) during the audit period, using Forestry Futures Trust funding. The prescription was appropriate for the stand conditions and the treatment had been well-implemented.

No treatments for the control of insect pests were conducted during the audit period.

3.4.5 Renewal Support

The Company has a good program for the collection and processing of cones and seeds, and presently maintains an adequate seed stock to support their artificial regeneration program through the next five years. As of April 11, 2007, the Company had a seed stock of approximately 159 million black spruce, 149 million white spruce, 43 million jack pine, and 2 million larch seeds for the Hearst Forest. The program for growing trees for planting is also adequate, and we observed few problems with the quality of planted stock, except for one site where the survival and growth of planted white spruce was poor.

HFMI is a member of the Northeast Seed Management Association, which is responsible for establishing and maintaining seed orchards and other tree improvement initiatives. These sites are presently supplying improved seed for the production of planting stock for the Hearst Forest. Of the total seed stock for the Hearst Forest, approximately 10

million jack pine seeds and 8 million black spruce seeds were obtained from these tree improvement initiatives.

Figure 11. Natural Regeneration site in need of tending.

3.4.6 Access

During the audit period the MNR and company completed the roads and water-crossings inventory for the Forest, following the direction of the Forest Roads and Water Crossings Initiative[20]. The inventory includes data on the approximately 1400 km of primary and secondary roads on the Forest and all the water crossings(bridges and culverts). Through a negotiated process the MNR and company decided which roads and water crossings would remain the responsibility of the SFL and which would become the responsibility of the Crown. Staff from both the MNR and company reported that this exercise was completed efficiently and both parties believe the outcome was fair. The company has retained the responsibility for maintenance for about two-thirds of the roads and water crossings on the Forest and the MNR has responsibility for the remainder. Those roads which are not being used to access forest operations or which are not likely to be used in the foreseeable future are the MNR's responsibility; other roads which are used to access operations are the responsibility of the company.

[20] Ontario Ministry of Natural Resources. 2003. Forest Roads and Water Crossings Initiative Task Team Report. 51 p.

Over the course of the site inspection members of the audit team drove on several hundred kilometres of forest roads. In general we found the roads to be built and maintained to reasonable standards. We did, however find an issue with grading practices. The audit team witnessed two bridges on recently-graded roads which had surfaces covered with gravel, the result of the grader operator not lifting the blade of his machine as he approached and drove over the bridge. Gravel on the surface of bridges can fall through the surface into the stream/river affecting its quality, and can degrade the surface of the bridge. Company staff were clearly appalled at the circumstances and took immediate action to have the bridge surfaces cleared off. Apparently the grader operator was inexperienced and was not familiar with appropriate practices.

In the course of the site inspection, audit team members viewed several active gravel pits. One category 14 pit[21], on the Waxatike road was out of compliance in several ways. The pit was too close the road, was inadequately reclaimed, and had standing water. After the audit site visit, the company provided evidence that the pit had been rehabilitated.

Although the bridges were cleaned off very promptly, the fact that the operator had not received adequate training so that he would know that such poor grading practice were forbidden is the crux of the issue. Similarly, although the pit was rehabilitated after the site visit, either lack of training or lack of implementation of appropriate procedures resulted in the non-compliances at the Waxatike pit.

Recommendation # 16

That the Company review the adequacy of training for grader operators and those forest workers involved in use and management of gravel pits.

One very practical measure put in place by the company over the last several years is a water-crossing signage project. Every water crossing on the Forest – all bridges and culverts on forest roads of all classes is being given a unique alpha-numeric identifier. A small sign with the identification is placed by the water-crossing. The intent is that, if a forest worker or other person traveling on the road notices a problem related to the culvert, it can be accurately reported. So, rather than saying "the fourth culvert past the big bend is clogged", it can be reported more accurately by noting "culvert H-10 is clogged". This is a very useful endeavour and the audit team commends the company for undertaking it.

3.4.7 Landbase Management

The audit team observed that the road right-of-ways in much of the Forest were very wide (Figure 12), and the practice was to scrape the upper soil layers off of the rights-of-way in order to provide material for the roadbed. This is part of the approach often taken to road-building in the clay belt, where gravel and aggregate are at a premium. However, the audit team was concerned that a substantial amount of productive forest

[21] Category 14 pits are a special class of gravel pit identified in the Aggregate Resources Act specific to the Forest industry for which no applications or special permits are required for development. There are requirements, however for the manner in which they are operated and maintained.

area is being lost, since the rights-of-way do not regenerate. In the SFMM analysis for the 2007 FMP, it was estimated that between 4-6% of the harvest area was permanently lost to roads.

Figure 12. Wide road right-of-way created by road construction practices.

Figure 13. Unpiled conifer slash along a winter road.

As Figure 13 shows, there were also numerous areas where there was slash by the roadside, sometimes piled and sometimes not. The audit team visually estimated that slash would account for another 1-2% of productive area being lost, while a general estimate of 3 – 7 % was cited in the Hearst 2002 FMP.

Lack of slash pile management was cited in the previous IFA, and the 2002 FMP contained the objective to eliminate slash piles from all harvest blocks scheduled to be planted and from 20% of the natural renewal sites. This was estimated to require a slash pile burning effort on 4,000 ha of annual harvest area, roughly 55% of the total planned harvest area.

During the first three years of the 2002 FMP period, the Company was ahead of its targets for slash piling (slash from 16,338 ha of cutover piled, or 82% of the five-year target) and burning (13,451 ha burned or 67% of target). However, during the last two years of the plan period, HFMI suspended slash piling and burning to reduce expenses.

While the SFMM analysis estimated that significant road building would continue for the next 40 years, at which point the majority of the road network would be in place, this still represents a loss of from 50,000 – 70,000 ha of productive forest land, which is a significant area. It is also, by definition, close to the road, which means that any timber that could be grown along the roadside would have a relatively high value by virtue of its accessibility. The audit team also notes that this was raised as an issue in the previous IFA, and a recommendation issued. (See discussion of Recommendation #14 in Table 10 in Section 3.8.8).

The audit team felt that the staff of HFMI, who rightly were experimenting with various practices such as commercial thinning to improve the current and future wood supply, should not ignore the losses of productive forest area due to current practices, and the benefits of reducing these losses. To this end, a recommendation is provided.

Recommendation # 17

That HFMI take measures to reduce the loss of productive forest area due to road construction and slash accumulation.

We note that this recommendation is very similar to that provided in the previous IFA. We trust that the fact that this issue has been raised by two separate audit teams in successive IFAs will spur HFMI to act more decisively than has been the case to date.

3.5 System Support

3.5.1 Human Resources

Throughout this report we have referred to HFMI and the role it plays in managing the Forest. In actual terms HFMI has only two staff – the General Manager and his Assistant. HFMI has a contractual arrangement with Thunderhouse Forest Services Inc. to provide forest management planning and consulting services which include "Planning, supervising and/or reporting any work required regarding forest management, forest renewal and forest tending activities performed on the Hearst Forest." The contractual arrangement specifies the details of the services to be provided and the nature of the

relationship between to the two companies. In essence Thunderhouse provides all forest planning and management services required to effectively implement the FMPs and the AWSs. There do not appear to be any aspects of forest management which are not addressed by Thunderhouse or the employees of HFMI.

Thunderhouse and HFMI staff all work in the same location and there is a seamless relationship between the organizations. Thunderhouse staff clearly see themselves as responsible for management of the Forest and not merely as contractors providing a service. Employees of Thunderhouse have job descriptions and the company is adequately staffed to meet its responsibilities. Thunderhouse staff are well qualified and training is provided to staff on an on-going basis. A recent departure from Thunderhouse resulted in a vacancy in the provision of GIS services; training is being provided to existing staff to ensure the quality of the service does not suffer.

The MNR Hearst District is split into two area teams: the Kapuskasing Area Team oversees management of the Gordon Cosens Forest and the Missinaibi West Area Team oversees management of the Hearst Forest. The Missinaibi West Area Team maintains a full complement of area staff including a supervisor, forester, biologist, forest modeling analyst, and several others with responsibilities that relate in one way or another to forest management. Notably absent is a Compliance Technician or trained compliance inspector as is described in Section 3.6.1 of this audit report.

All MNR staff are well qualified for their positions. MNR has a very well organized and effective training program in place to provide the most current direction and interpretation of forestry-related direction to both MNR and Company staff involved in the development of forest management plans.

3.5.2 Documentation and Quality Control

All key documents are kept by Company staff in a well-organized manner. FMPs, ARs, AWSs and key government guidance documents were easily retrieved. However, as documented in Section 3.3.8, there are problems associated with some aspects of documentation associated with planning; these include:

- Documentation of required alterations was incomplete;
- Records of the key development dates such as provision of preliminary alterations, final alterations, operations start and others were difficult to obtain or were not recorded;
- Submission summaries from the FI portal are not very clear and are often difficult to interpret, making it difficult to track planning progress.
- Complete copies of all amendments are not kept on file at the HFMI office.

These issues are described more fully in Sections 3.3.8 and 3.3.9 where recommendations and suggestions are made to address them.

3.6 MONITORING

3.6.1 General Monitoring

Compliance Monitoring

The 2007-2017 ten-year compliance plan was submitted and approved with the 2007 FMP. The annual compliance plans are submitted and approved with each AWS and include a schedule of compliance inspections by block. Hearst MNR District also prepared a ten-year compliance strategy for the entire Hearst District in 2005. The District also prepares annual compliance operating plans. The HFMI ten-year compliance plan and annual compliance plans followed the requirements of the 1998 Guideline for Forest Industry Compliance Planning.

The past compliance issues identified in Annual Reports and compliance plans were site disturbance (i.e. rutting) and trespasses into reserves. Water crossings, missed bunches of wood, category 14 pits, hardwood utilization, harvesting near high recreation areas such as cottaging, tourism and hunting and trapping, and harvesting on CLFN traplines have been the current priority areas.

Prior to operations commencing on each block, a start-up meeting is held with the overlapping licensees to review the prescriptions and potential compliance issues. In-progress and operations completed inspections are carried out by HFMI's compliance technician who is a certified compliance inspector. A spring flight is normally completed to review the winter cut areas for compliance. Summer SAP photography is also used to check all reserves and block boundaries for the prior year's harvest blocks. All SFL reports are reviewed and approved by HFMI's compliance lead who is also a certified compliance inspector.

HFMI arranges office and field training for SFL, MNR, and overlapping licensee staff as required. For example, training has been held for culvert installation, stick nest identification and protection and snags. HFMI, the MNR and overlapping licensee supervisors hold joint meetings to review and improve the compliance on the Hearst Forest.

Overall, there has been an improvement in the quality of compliance inspection reports over the audit term. The compliance reports have progressed from being very limited in scope to becoming very detailed and comprehensive reports with pictures and maps.

One problem noted with the HFMI compliance inspections was the overuse of the *"in compliance with comments"* category to report what the auditors deemed to be clear non-compliances. Use of this category of finding was observed in many reports, however for the first four years of the audit period it was not tracked in the Annual Reports. The 2006/07 AR reported that the SFL inspections found 103 instances of in compliance, 4 instances of non-compliance and 17 instances of in compliance with comments.

Use of this classification was likely due to difficulty in assigning a compliance significance level to less severe instances non-compliances. SFL staff stated that they are often use "in compliance with comments" when there is a small incident of non-

compliance (e.g. minor AOC trespass, rutting in a portion of the block, one missed bunch etc.) that does not adversely affect the value being protected or the integrity of the operation. HFMI has stated they would prefer to have a "not in compliance with comments" category to handle small non-compliances where the majority of the block and area is in compliance.

A presentation given by Corporate MNR to District staff, and provided to the audit team indicated that, with compliance system changes planned for implementation in late 2007 or early 2008, the SFL compliance inspectors will no longer assign compliance or non-compliance. They will only define when an operational issue exists and MNR will be left to define compliance or non-compliance and appropriate action plans to remedy. The *"in-compliance with comments"* category will be dropped, therefore there no recommendation or suggestion is provided.

Despite considerable effort, Hearst District MNR does not currently have a trained compliance inspector performing compliance inspections on the Hearst Forest. In the past five years they have trained four different staff members as compliance inspectors and three have left to become Conservation Officers in other Districts. The District certified compliance inspector has been on leave. MNR staff report that MNR is undertaking a review and revision of the forest compliance program and pending results of that process, has suspended compliance certification courses during the fiscal 2007/08 year. MNR Hearst District does not currently have the budget flexibility to fill this staffing shortfall and in the meantime District MNR has not been completing any spot check audits or verification audits of non-compliances reported by HFMI. To deal with the staffing shortfall, MNR Kapuskasing Area certified compliance inspectors are available to undertake inspections as required.

HFMI and MNR both complete a summary of compliance inspections as part of the Annual Reporting (i.e. Tables AR-12.1 and AR-12.2 from the 1996 FMPM and AR-12 and AR-13 from the 2004 FMPM). The monitoring and assessment section of the Annual Reports generally met the FMPM requirements and provided a brief summary of the compliance results, needs and priorities.

Table 7 provides the compliance inspection results for the audit term based on the Annual Reporting. The 2006-07 figures were summarized from Forest Operations Inspections Program (FOIP) records as the Annual Report was not yet available. There were a total of 589 compliance inspection reports during the five year audit term, 92% of which were completed by the SFL or its representatives and the remaining 8% were completed by the MNR. The forest industry reported a total of 35 non-compliances representing 6% of all its reports, while the MNR reported a total of 13 non-compliances representing 28% of all its reports. There were 36 harvest non-compliances, 11 access non-compliances, and 8 renewal non-compliances reported by either HFMI or MNR during the audit period.

The level of non-compliances is improving for both HFMI and MNR. The higher rate of non-compliances reported by the MNR is partly due to the fact that it inspects all non-compliances reported by the company and only a small portion of those reported by the company to be in compliance. It may also be related to the company's generous use of the "in-compliance with comments" feature of the inspection reports.

Table 7. Summary of compliance monitoring – Hearst Forest 2002-07. (Data from the 2002-03 to 2005-06 Annual Reports and 2006-07 FOIP reports).

AWS	# of Inspections			# Non-Compliances			% Non-Compliances		
	SFL	MNR	Total	SFL	MNR	Total	SFL	MNR	Total
2002-03	106	18	124	9	8	17	8%	44%	14%
2003-04	131	13	144	10	4	14	8%	31%	10%
2004-05	106	0	106	9	0	9	8%	0%	8%
2005-06	74	6	80	3	0	3	4%	0%	4%
2006-07	124	11	135	4	1	5	3%	9%	4%
Total	**541**	**48**	**589**	**35**	**13**	**48**	**6%**	**27%**	**8%**

The number of compliance inspections undertaken by HFMI were compared to the number undertaken in 2004-05 for other SFLs in Ontario. On average there were 136 inspections per forest for that year compared to 108 HFMI inspections per year for the five-year period of this audit. Therefore, the overall level of compliance inspections appears to be close to the average in Ontario and appears to be adequate. As noted earlier, the number of MNR inspections is very low in recent years due to budget limitations and a lack of a certified compliance inspector, as discussed earlier.

Hearst MNR District prepares annual forest compliance operations plans which outline targets for MNR compliance inspections on the Hearst Forest. In 2006-07 MNR planned to do monthly joint inspections, audit 20% of all "in compliance with comments" HFMI reports, audit 5% of all HFMI in compliance reports, and audit all HFMI non-compliance reports. Based on the HFMI 2006-07 inspection levels, this should result in a total MNR District target of 25 compliance inspections. There were only 11 MNR inspections in 2006-07 and the target levels were not achieved in any of the other audit years either.

The audit team recognizes that the MNR has attempted to develop capacity so that certified compliance inspectors would reside in the District and be available to carry out its compliance monitoring responsibilities. However, because this is an important component of MNR's forest management activities, the following recommendation identifies the need to fulfill its monitoring obligations. We note that another option which may be available to the MNR besides maintaining compliance inspectors in-house would be to contract this expertise on an as-needed basis.

Recommendation # 18

That MNR District fulfill its compliance monitoring obligations and meet the inspection targets identified in the forest compliance operations plans.

Silvicultural Effectiveness Monitoring

HFMI has a very good system for silvicultural effectiveness monitoring. Field surveys, both formal and informal, are conducted at various stages in the management of a stand. These include:

- Plantation assessments, which are done by HFMI staff, using randomly located plots at an intensity of one plot per 2.5 ha;
- Site preparation quality assessments, which are conducted during the operation;

- Tending needs assessments, which are conducted annually on all plantations established within the past 10 years, and as time permits on naturally regenerated lowland sites;
- Post-cleaning surveys, which are conducted by aerial survey on approximately 40% of the blocks from the previous year's spray program, and are used to determine any systematic issues with effectiveness;
- Natural regeneration assessments, which are conducted on upland sites to determine areas suitable for hardwood regeneration;
- Post-harvest assessments of lowland regeneration sites to determine treatment effectiveness, and the suitability for artificial regeneration if needed;
- Regeneration surveys of Category 1 and 2 Lands to determine needs for silvicultural treatments; and
- Free-to-grow assessments.

HFMI staff maintain GIS layers for depletions, artificial and natural regeneration, and Category 1 and 2 Lands, which contain information collected during the above surveys about site conditions and treatment requirements. These are used to facilitate the scheduling of the treatments, or further surveys as required, as well as for Annual Reporting. Several improvements to this tracking system were implemented during the audit period.

During the field review we encountered one site (Site #22, located in Newlands Township), that had a number of mapping errors associated with the silvicultural activities. Some of the area mapped as planted had not been treated, in some cases the planted trees were identified as the wrong species, and in one case, an area slated for natural hardwood regeneration was incorrectly identified as planted, resulting in the area receiving herbicide treatment. Upon review it was found that the paper maps and data supplied by the assessors were correct, but the information had been incorrectly entered into the GIS system. Although we did not find any other sites with these sorts of errors, due to the total size of the area involved and the multiplicity of errors, we believe that HFMI should take measures to ensure the accuracy of silvicultural mapping.

Recommendation # 19

That HFMI correct any mapping errors associated with Site #22 in their GIS system, ensure that all areas contained within this site are fully regenerated, and ensure that reporting of the activities in this area is accurate.

Recommendation # 20

That HFMI develop and implement a system of quality assurance to ensure that field data related to silvicultural activities is correctly entered into their GIS system.

MNR and HFMI collaborate on a variety of silvicultural effectiveness monitoring initiatives, including studies of:

- Regeneration on CLAAG sites,
- effects of residual trees on hardwood regeneration,
- effects of rutting on regeneration,
- trials of improved planting stock,

- determination of the accuracy of aerial free-to-grow surveys, and associated ground truthing calibration needs,
- comparison of the effects of different herbicides, and
- effects of harvest to shoreline practices.

Hearst MNR and HFMI meet annually to determine and prioritize silvicultural and harvesting issues that require studies to fill specific information needs. MNR participates in these studies as part of their obligations for silvicultural effectiveness monitoring, while HFMI provides in-kind support. The scope and breadth of these studies is impressive, as is the collegial rapport between MNR and HFMI which facilitates their implementation and use.

Best Practice

Both MNR and HFMI are to be commended for their collaborative efforts in conducting silvicultural effectiveness monitoring studies, and their use of the information gained through these studies to improve the silvicultural components of successive FMPs.

During the first four years of the five-year 2002-2007 FMP term, HFMI completed free-to-grow surveys on 46, 093 ha. All of this area was declared free-to-grow, and all the assessed sites were declared to have successfully regenerated to the projected forest unit. Our field evaluations, which were conducted on approximately 11% of the area assessed, confirmed the accuracy of these reports since our observations did not indicate any discrepancies between the assessed results and the actual conditions in the field. We verified the free-to-grow status of each site viewed as well as a sample of the FRI attributes, including species composition, stocking, and average height of the regeneration.

As previously discussed, the work that is being conducted for the new FRI for the Hearst Forest is expected to provide information on the free-to-grow status, and forest stand attributes, for most of the remaining backlog NSR area.

3.6.2 Annual Reports

Most of the responsibility for producing Annual Reports rests with the SFL holder. The MNR District is required to ensure that ARs be reviewed and finalized according to the Annual Report Preparation and Review Protocol. As such MNR District was responsible for reviewing all Annual Reports up to 2003-04. The 2004 FMPM indicates that MNR District is no longer required to review all Annual Reports and instead must only review the year three, seven and ten Annual Reports. However, MNR also encourages its District staff to review other Annual Reports based on its judgment. Hearst District has reviewed the 2004-05 and 2005-06 Annual Reports.

Table 8 provides the Annual Report submission, review, and approval information for the audit period. The 2002-03 and 2003-04 Annual Reports were prepared under the 1996 FMPM and included a spring submission for silviculture activities due on April 15 and a fall submission for harvest activities, due on Nov 15 of the following year. The 2004-05, 2005-06 and 2006-07 Annual Reports, prepared according to the FMPM, were submitted in their entirety on November 15 as required. The 2004 FMPM requires that Annual Reports for the last year of an FMP prepared under the 1996 FMPM provide additional information beyond that required for a standard Annual Report. Therefore, the 2006-07

Annual Report was expected to meet the Year 10 AR requirements. However, the 2006-07 Annual Report could not be reviewed as it was not available during the audit (it is not required until Nov 15, 2007 – after the period included in this audit.)

Table 8. Summary of AR Submission, Review and Approval - Hearst Forest 2002-07 IFA Term

Annual Report	FMPM	Due Date	Draft Sub.	MNR Review	Final Approval	Status
2002-03 AR Spring	1996	15-Apr-03	15-Apr-03	**unknown**	21-May-03	accepted after review
2002-03 AR Fall	1996	15-Nov-03	17-Nov-03	22-Dec-03	17-Mar-03	accepted after review
2003-04 AR Spring	1996	15-Apr-04	15-Apr-04	11-May-04	15-Jul-04	accepted with qualifications
2003-04 AR Fall		15-Nov-04	15-Nov-04	15-Dec-04	01-Mar-05	accepted after review
2004-05 AR (2004 FMPM)	2004	15-Nov-05	15-Nov-05	15-Dec-04	01-Mar-05	accepted after reivew
2005-06 AR (2004 FMPM)	2004	15-Nov-06	15-Nov-06	14-Dec-06		accepted after review
2006-07 AR (2004 FMPM)	2004	15-Nov-07	not yet available	na	na	not yet available

All ARs were submitted, reviewed and approved electronically via the Forest Information portal. MNR also provides information via the portal on harvest volumes, revenue and expenditures (table AR-11 of the Annual Reports), compliance reporting (AR-12 and AR-13), and Term and Condition #34 activities.

All Annual Reports were complete and submitted on time by HFMI. MNR completed reasonable reviews according to the AR checklist, and there were very few alterations required as a result of MNR's reviews - mainly to correct tables and add additional text. All ARs were accepted after review by MNR, except for the 2003-04 spring AR which was accepted with qualifications since accurate natural regeneration, site preparation and road construction areas were not available in the spring submission as the information is supplied from Supplementary Aerial Photography (SAP) which is flown the summer. HFMI previously reported these numbers as draft in the spring submission and corrected them in the fall submission (based on the SAP), however this led to confusion. The single fall submission of the AR under the 2004 FMPM has resolved this problem.

Overall, HFMI and MNR District have met the Annual Reporting requirements on the Hearst Forest. We note, however that more discussion of the implication of results would improve the quality of the ARs. For example, the ARs list roads with closures, however they do not assess or discuss the success of the closure measures on addressing the specific values being protected.

Suggestion # 10

The Company should provide more discussion and details of the implications of operations results in the Annual Reports.

3.6.3 Report of Past Forest Operations/ Y10AR

Since the 2004-05 year, HFMI has been reporting on its forest management activities according to the requirements of the 2004 FMPM.[22] As described earlier, HFMI is required to produce an expanded AR for the year 2006-07, but it was not due until approximately two months after the field visit.

[22] Phase-in provisions of the 2004 FMPM required some additional information in the 2003-04 AR.

Accordingly, this IFA reviewed the Report on Past Forest Operations (RPFO) which was created in 2004 as part of the background material for the development of the 2007 FMP. The RPFO covered the period of the 1997 – 2002 FMP, which is a plan that was prepared during the transition from the Timber Management Planning Manual to the 1996 FMPM. As a result, the key plan assumptions were not documented and many of the data that are required to assess the sustainability criteria were not determined. These factors limited the ability of the RPFO authors to document certain aspects of planning and management.

The RPFO also covered a single five-year plan period, which limited the potential for discussions of trends. However, many of the results and issues from the 1997 FMP period were apparent during the current IFA. Examples include:

- generally very good utilization of the planned conifer harvest;
- difficulties in obtaining full utilization of hardwoods;
- high levels of by-pass;
- difficulties caused by a poor forest resource inventory;

On the other hand, some of the issues identified in the RPFO have been smoothed out. Examples of these include:

- Quality of native values information from Constance Lake was poor in the 1997 FMP but is much more comprehensive now;
- Going into the 1997 FMP, HFMI phased out horse logging because it was not economical and did not achieve the desired silvicultural results, which led to protests by most of the horse-loggers, but these have long since disappeared.

The RPFO made a detailed assessment of the extent that objectives in the 1997 FMP were achieved. It is interesting that well before the NDPEG was developed, HFMI was already including objectives related to patch size and shape, and the density, species composition and pattern of residual patches and individual trees. The only objective that HFMI was unable to meet was to have use prescribed burning to prepare at least 20% of the area planned for conifer renewal – no prescribed burns were undertaken during the 1997 FMP period, nor during the 2002 FMP period where a similar but expanded objective was included in the plan.

The RPFO contained good discussions of the key issues, and made best efforts to assess sustainability, as is described in section 3.7.2.

3.7 Achievement of Management Objectives and Forest Sustainability

3.7.1 Achievement of Management Objectives

Table 9, below, summarizes the achievement of the objectives of the 2002 FMP. The FMP identified specific objectives under the broad categories of biodiversity, forest cover, economic, social, and silvicultural.

The biodiversity objectives incorporate broad considerations such as disturbance size, age-class distribution and forest composition. All the objectives are projected to be met, largely because they were developed in concert with the identification of the Selected Management Alternative and so are "hard-wired" into the plan.

The objectives related to forest cover are likely to be attained, with the following caveats, notes:

- The objective for harvest disturbance shape is not quantitative and so cannot be readily assessed,
- The objective related to prescribed burning has not been attained. As discussed in Section 3.4.3, the company and MNR should continue to search for opportunities to implement prescribed burns.
- Attempts to manage slash have declined significantly in the latter two years of the plan period.

The plan's economic objectives are tied to volumes harvested on the Forest. As discussed in several places in this report, the volume harvested was considerably less than planned, primarily because of issues related to poplar utilization. The Company cannot be perceived as being at fault for the issues which have conspired to create the circumstances in which poplar management on the Forest is very challenging.

The social objectives focus on public consultation and First Nations. As noted in several places in this report, the Company and MNR have done an excellent job in fostering the aspirations of the CLFN and this is reflected in the level of achievement of these objectives. The other objective – related to public consultation- is subjective in nature, but the general satisfaction related to public involvement by the parties interviewed during the audit reflect positively on efforts related to the objective.

The lone silviculture objective has a series of associated quantitative targets. All targets were achieved.

Table 9. Assessment of the Achievement of the Objectives of the 2002 FMP.

Objectives/Targets	Achievements	Comments
Biodiversity Objectives		
Harvest Disturbance Patch Size Distribution Objective To move toward a range of harvest disturbance patch sizes across the landscape that simulates the frequency and distribution of patch sizes created by natural disturbance on the Hearst Forest. Target To allocate harvest in a range of patch sizes that more closely resembles the historic range of disturbance sizes.	Tables 20 and 21 of the 2002 FMP show the range of historical disturbance sizes in comparison with the planned range of clearcut sizes. The planned distribution emulates the natural distribution very well. Table AR-3 (Annual Report of planned clearcuts) of the 2005/06 Annual Report (the 2006/07 Report was not scheduled for completion during this audit) shows that the company has made very good progress in meeting the planned range of clearcut sizes	Target expected to be achieved
Age-Class Distribution Objective To reach and maintain an age class structure that is similar to the pre-fire suppression era on the Hearst Forest. Target To develop an age class structure that will equalize the area in all age classes by Forest Unit leading to rotation age [e.g. 80 to 100 years depending on Forest Unit] and maintaining ten percent of the area in "old forest" [e.g. older than the rotation age] for all Forest Units except Jack Pine. Jack Pine old forest will be targeted at five percent.	Table 22 of the 2002 FMP provides details on the age-class structure target. The company worked toward this objective by harvesting oldest areas. This goal was a long-term objective, extending beyond the horizon of the plan. Free-to-grow results for surveys that were conducted during the audit period show that the species composition of regenerated areas is developing as predicted in the 2002-2007 FMP, since all of the areas assessed had been successfully regenerated to the projected forest units. This was confirmed by our field observations of assessed areas.	The old growth objective of the new (2007) plan modified this objective. As noted in the discussion of the Historical Forest in Section 3.3.5, the objectives of the 2007 are projected to be met. Meeting these objectives will result in maintaining considerably more than 10% of the Forest in old growth. However, we note that the implementation of the landscape guide will likely cause this objective to be revisited again.
Forest Composition Objective To maintain the area, based on the current representation, of all Forest Units. Target Maintain the current representation by Forest Unit area within the managed landbase on the Hearst Forest.	Table 23 of the 2002 FMP provides details on the specific targets for each forest unit. Table FMP-13 of the plan verifies that the targets are forecast to be met.	Target expected to be achieved
Marten Habitat Objective To maintain optimum amounts and distribution of marten habitat on the Hearst Forest. Target The amount of area on the Hearst Forest, including OLL areas and Parks, to be maintained in suitable condition as	Table FMP-13 verifies that these targets are projected to be met.	Given that the targets were developed in concert with the modeling exercise, it is axiomatic that Table FMP-13 would predict they are to be met. The revised targets in the 2007 FMP are consistent with the 2002

<table>
<tr><th>Objectives/Targets</th><th>Achievements</th><th>Comments</th></tr>
<tr><td>marten cores will be 12.0 % for 2002 to 2022, 13.0 % for 2022 to 2042 and 13.7% for 2042 to 2062.</td><td></td><td>objectives.</td></tr>
<tr><td><u>Woodland Caribou Habitat Objective</u>
Above all else, do no harm. Minimize [forest management] activity in the herd's home range, with the hope that doing nothing is the best approach in the absence of good information.

There is no target for this objective.</td><td>Given that this objective has no target, it is hard to assess its attainment. The 2007 FMP has much more specific direction on dealing with caribou habitat.</td><td>Section 3.3.5 of this report discusses management of caribou on the Forest and Recommendation # 3 identifies the need for the MNR to finalize the Caribou Recovery Strategy, which will provide more definitive direction for managing caribou on the Forest.</td></tr>
<tr><td colspan="3">Forest Cover Objectives</td></tr>
<tr><td><u>Harvest Disturbance Shape Objective</u>
To emulate through harvest configurations, the shape and orientation of natural fires where possible.

<u>Target</u>
To design harvest patterns that more closely reflect the broad disturbance patterns of wildfire.</td><td>Discussions in the plan's text identify plans to emulate natural disturbance shapes, but no data are available to assess achievement. Harvest maps and visual inspection by auditors indicate that shapes appear consistent with natural disturbances.</td><td>The plan recognizes that not having quantitative targets for this objective is a shortcoming.
The 2007 FMP contains a similar objective; however a preliminary assessment of achievement of objectives is not required until the Year 7 Annual Report, which will be required Nov. 15, 2015</td></tr>
<tr><td><u>Harvest Reserves Objective</u>
To maintain patches of standing forest within cutovers that emulate the patterns of residual forest that are left by natural disturbances.

<u>Targets</u>
Residual targets for FU:
Forest Unit | % of allocated Area in Residual Patches | % of allocated Area in AOCs | Total
Hdwd | 1.5 | 9.5 | 11
Hdwd Poor | 1.5 | 4.5 | 6
Mxwd | 1.0 | 10 | 11
Pj | 0 | 6 | 6
Sp Flat | 11 | 2 | 13
Sp 3 | 11 | 7 | 18
Sp Slope | 7 | 2 | 9
Swamp | 11 | 4 | 15</td><td>Harvest plans were developed using the AOC allocations as identified in the target. The audit team's visual inspection during the site visits suggest that the area is residual patches are being attained.</td><td>This objective is very similar to the requirements of the NDPEG, however as the NDPEG was not required at the time this plan was developed, inclusion of the objective was foresightful.</td></tr>
<tr><td><u>Stand Species Composition Objective</u>
To maintain mixedwood stands, and the species within</td><td>Measurement of the achievement of this objective for the 2002 FMP period will not be possible until free-to-</td><td>Free-to-grow results for the 2002 FMP term, which reflect regeneration</td></tr>
</table>

Objectives/Targets	Achievements	Comments
individual stands, in a similar state as fire regenerated stands. Target Maintain current representation of the Mixedwood FU with species compositions similar to post fire mixedwoods within +/- 20%.	grow assessment results become available for stands treated during this period. In both the 2002 and the 2007 FMPs, SGRs that maintain the current condition for the mixedwood (MW1 and MW2) forest units either rely on natural regeneration, or use low to full-density conifer planting to maintain the conifer component in these stands. Mixedwood forest units can also result from natural regeneration of other, conifer dominated forest units, such as SF1 and SS. HFMI has also been experimenting with half-density mechanical and chemical site preparation (i.e., covering one-half or less of the total area by using alternate rows or aircraft passes), followed by conifer planting, resulting in "striping" of the planted conifers, alternating with hardwood regeneration which predominates in the untreated corridors.	results from previous plan terms, indicate little change in the balance of historical versus current forest units. The 2002 FMP notes that the +/- 20% range is intended to address a limitation within SFMM that inadequately addresses silviculture for mixedwoods. "SFMM is incapable of fully implementing low-density conifer planting prescriptions, with the result that financial savings that would be realized from such a practice are not accounted for. SFMM projections indicate that revenues from harvest will not allow intensive treatment of a sufficient area of mixedwood to halt a decline in its area. In reality, for every dollar spent on low density planting, roughly twice the area of mixedwood is regenerated that SFMM gives credit for."
Maintaining Fire in the Ecosystem Objective To return the use of fire as a silvicultural tool on the Hearst Forest. Targets 1. Use prescribed burning for 25% of the area forecast for artificial regeneration. 2. Eliminate all roadside slash piles from areas to be artificially regenerated and 20% of the slash piles from natural regeneration areas.	No large-scale prescribed burning for site preparation was conducted during the 2002 FMP term. Both HFMI and Hearst District MNR made efforts to bring about prescribed burning, but issues of insurance, liability and cost continue to present formidable obstacles to implementing these treatments. The 2002/03 Annual Report states that "HFMI had expended a significant effort and money on preparing 2 burn sites, (but) the burn sites were not accomplished due to the length of time taken to establish satisfactory business arrangements with MNR to carry out the work, resulting in a lost opportunity due to (lack of suitable) weather". HFMI indicated that this situation has not been resolved throughout the subsequent years of the FMP term. HFMI implemented slash pile burning programs in	HFMI and Hearst MNR are encouraged to continue to promote prescribed burning as a silvicultural tool for the Hearst Forest, but ultimately the responsibility for creating a suitable business arrangement for conducting burns in association with SFL's rests with corporate MNR. Approximately 67% of the FMP target for slash pile burning was achieved. Obstacles to completing the program as planned included difficulties in getting harvest contractors to pile slash consistently on all sites, and the high costs associated with completing

Objectives/Targets	Achievements	Comments
	2002, 2003, and 2004. No slash pile burning was conducted in 2005 or 2006. The total cutover area treated was 13,541 ha, or 67% of the forecast of 20,000 ha.	the burns.
Retention of Stand Structure Objective To maintain structural elements to contribute to wildlife habitat at the stand level. Targets Snags in clearcut areas to be retained (per 100 ha): 1000 snags in diameter class 15-25 cm; 500 snags in diameter class 25-35 cm; and 125 snags in diameter class > 35 cm.	Inspection during the audit found good retention of snags consistent with the targets	
Site Specific Habitat Needs Objective To ensure that site specific habitat needs of individual wildlife species are maintained. Target To maintain and protect the site specific habitat needs of moose, bald eagle, osprey and heron.	Habitat for bald eagle, osprey and herons are to be protected through the use of AOC prescriptions which protect their nests. The audit team found good compliance with the AOC prescription. Habitat for moose is to be protected by the use of AOC prescriptions for aquatic feeding areas. Also moose summer and late winter habitat was included in the modeling performed in preparation of the plan. The modeling indicates that moose summer habitat will increase substantially, but late winter habitat will decline somewhat.	Section 3.3.5 of this report discusses the shortcomings of the present approach to allocating funds for values surveys. Although we found that known values are provided with good protection, instances where values were not known (likely because of the manner in which funding is allocated for surveys) were also found. This lead s to Discussions in Section 3.4.1 describe the stream classification protocol used on the Hearst Forest. In that discussion we note that in the absence of comprehensive funding, the protocol which MNR staff have developed to classify the thermal regime of streams is a useful tool to compensate for the absence of more complete information. The following recommendation is intended to direct Corporate MNR to provide adequate funding to address issues both related to the timing of values funding (described above) and the level of funding so that high priority waterbodies can be comprehensively assessed for their sensitivity to forest

Objectives/Targets	Achievements	Comments
		management operations and thermal regime. Recommendation # 5 being issued in Section 3.3.5.
Tree Genetics Objective To maintain the gene pool representation within all tree species on the Hearst Forest. Target Ensure that all seedlings planted within the renewal program are genetically adapted for the geographic location in which they will grow.	There are two seed zones within the Hearst Forest, Zone 16 and 17. HFMI's cone collection and stock production programs are designed to ensure that seed for all species is directed to the appropriate zone. The use of natural regeneration treatments also ensures that the locally adapted gene pool is maintained on these sites.	The target was achieved.
Economic Objectives		
Harvest Objective To provide for sustainable and continuous use of the Forest to achieve social and economic well-being through provision of opportunities for production of forest products, employment and forest related economic development. Target To allocate for depletion for the five year term, a net area for harvest equal to the AHA. Specific volume targets and commitments are identified in section 3.8.5 of this report.	The 2002 FMP shows that the projected SPF harvest over the next 100 years varies within several percentage points of the first period harvest. The planned cedar and birch veneer harvests decline by roughly 75% and 33%, respectively, over the course of the 100 year simulation period. The aspen harvest peaks at 1.3 million m^3/5-year period in 2040, and then declines by 33% over the next 60 years. Table FMP-18 shows that the planned harvest areas are consistent with the AHA for all forest units except the poorer lowland conifer forest units, Swp and Sp3.	This is really a planning objective, which is met. The 2002 FMP provides an almost even, sustainable harvest of SPF over the next 100 years. The projected hardwood harvest rises by 25% over the next 40 years, but is 17% below the current level at the end of 100 years. This is attributed to an uneven age class structure. The target is rather meaningless, since a full allocation is a planning decision that has little bearing on actual usage. In past plan periods, the planned harvest area of forest units with abundant hardwood and cedar was high but the actual harvest was below planned, especially for birch and cedar. This was not likely to change going into the 2002 plan period.
Utilization Objective Within the limits of sustainability, encourage the maximum utilization of forest resources. Targets	The Company had difficulty meeting this objective. The utilization of conifer was very good during the audit period, but there were on-going problems related to the utilization of poplar. In 2002, the AR notes that the bump-up during the first six months of	It is hoped that the development of a partnership SFL will result in better coordination between the users of various components of the harvest, however the revisions to the SFL will

Objectives/Targets	Achievements	Comments
1. To fully utilize all marketable species, diameter classes and products within areas allocated to maximize the yield of available forest products. 2. To promote increased utilization of presently under-utilized species and Forest Units by supporting initiatives that increase utilization.	the plan reduced poplar harvest opportunities (summer harvest) and Grant also adopted a position of not paying for aspen cut as a second pass. In 2003 and 2004, the AR identified that by pass of small concentrations of poplar had a large role in reducing aspen utilization but the OSB market was functional during those years. By 2005, OSB markets disappeared; as a result, more poplar was left in the bush and haul distances were being reduced. As of March 31, 2006, the three hardwood users, Longlac Wood Products, Columbia Forest Products and Grant Forest Products, had used 36%, 34% and 21% of their five year commitments. Re minor species, by the end of Year 4, less than 2% of the planned cedar, larch and white birch volume had been harvested. Records did not differentiate balsam poplar use but it was minimal.	not be able to eliminate some of the economic realities that affect utilization.
Economic Development for Native Communities Objective To support forest base economic development for Constance Lake and Hornepayne First Nations. Targets To achieve the current MNR volume directive to CLFN and explore further ventures that may be initiated.	The 2002 FMP made provision for the Constance Lake First Nation company, Mammamattawa (now called Amik), to harvest the commitment volume. By the end of Year 2, Mammamattawa had cut 562 of the allocated 790 ha. However, it was also active harvesting as a contractor on area licensed to other overlapping licence holders. Company and MNR also facilitated some small scale harvesting by Eagle Earth Cree and Ojibway Historical Centre.	The community expressed great satisfaction in the support for their economic development aspirations. Hornepayne First Nation is not engaged.
Social Objectives		
Public Consultation Objective To effectively consult with the stakeholders of Hearst Forest where forest management planning affects users. Targets 1. To increase the involvement of local citizens in forest management planning and in the development of this Plan. 2. To identify all resource-based social concerns though	The subjective nature of the targets makes assessment somewhat difficult. However, as noted in several places in this document, HFMI and the MNR did an exemplary job in attempting to engage the public in planning process.	All parties involved expressed satisfaction with the processes used to engage the public in planning.

Objectives/Targets	Achievements	Comments
consultation with the citizens of the Hearst Forest, then design and implement management prescriptions that will minimize impacts and optimize benefits with the stakeholders.		
First Nations Forest Values Objective To respectfully incorporate Native values information in order to mitigate impacts. Target To gain as much information as possible about the location and nature of First Nations values within areas selected for operations, and design mitigating measures to offset potentially negative effects of forest management activities.	The MNR has hired a Native Liaison person in the community to work at the band office to ensure that Native Values information is collected and respected through dialogue focused on mitigating impacts. The largest value currently being impacted is trapping; however, the MNR did respond by hiring a trapping coordinator to assist in the resolution of these issues.	Having two community coordinators hired, an open door policy and support of values collection and reporting represents good efforts on the part of the MNR.
First Nation Trappers Consultation Objective To meet with individual CLFN trappers before operations commence on an individual's trapline, to inform him/her of forestry plans and to develop alternative management prescriptions if needed.	The MNR hired a CLFN community member to act as the trapping coordinator for the First Nation. The trappers were well informed of trapping operations and forestry plans. The Native Liaison, was also a CLFN member hired by the MNR and stationed in the community to assist in communicating forestry plans and to develop alternative management prescriptions if needed.	MNR did an exceptional job in creating opportunities for dialogue and community consultation. Difference around compensation for loss of trap lines continue; these discussion will continue.
Highway Aesthetic Objective To maintain healthy forest cover for long-term viewscape management along highway corridors. Target To harvest highway buffers in 4 locations on Highway 11 and 631 to allow for silviculture activities that will establish healthy young forests.	The audit team inspected a couple of these sites and found implementation of good silviculture.	
Silviculture Objectives		
Silviculture Objective To ensure acceptable natural and artificial regeneration of all harvested and naturally depleted areas to achieve the Desired Future Forest Condition. Targets 1. Natural regen. of 2,866 ha spruce and conifer annually. 2. Natural regen. of 254 ha mixedwoods annually. 3. Natural regen. of 621 ha of aspen and other hardwoods	During the audit period, HFMI achieved annual averages of 4,841 ha of natural regeneration, 3,719 ha of artificial regeneration, 3,080 ha of site preparation, and 2,616 ha of conifer cleaning. Minimum levels of these treatments were met, and in most cases exceeded, for the forest units as indicated by the targets shown to the left.	All targets were achieved. HFMI has done an excellent job of meeting or exceeding silvicultural objectives and targets for the 2002 FMP, making use of funding from both the Forest Renewal Trust, for normal harvest areas, as well as Forestry Futures Trust funding, for treatments that were applied to Category 1 and 2

Objectives/Targets	Achievements	Comments
annually. 4. Minimum annual allocations of 2,628 ha for artificial regen to conifer and1,016 ha to mixedwoods, which reflects planting of 6.5 million conifer seedlings annually. 5. Site prepare 2,658 ha by mechanical, chemical and/or manual methods. 6. Conifer tending of 2,363 ha annually.		lands.

3.7.2 *Review of the RPFO Discussion of Sustainability*

The authors of the RPFO made efforts to assess the indicators of sustainability using the information contained within the FMPs. However, the analysis was limited by the following factors:

- inability to access the SFMM data and output files used in conjunction with the 1997 FMP to review planned and future values;
- the 1997 FMP was prepared during the period when the requirements of the 1996 FMP were being phased in, hence parts of the plan were developed according to the 1986 Timber Management Planning Manual, and do not contain the information required for the sustainability indicator determination;
- inability to meaningfully compare data dependent on forest unit definition over the plan terms since the forest units definitions changed from one plan to the next; and
- the values of a number of indicators, especially socio-economic ones, could not be forecast at the time when the 1997 FMP was developed, hence there are no early data points.

The discussion in the RPFO of indicators of forest condition shows predicted habitat areas for indicator species used in the 1997 FMP, actual and predicted Shannon-Weiner index values, and the area of managed Crown forest available for timber production. The predicted values do not indicate any sustainability concerns, however these values are of limited use because they are only predictions and are not backed by any discernable trends, or delineation of acceptable levels. The only socio-economic indicator that was directly reported on was the degree of participation by local First Nations in the special Native Consultation Option, and both First Nations participated. LCC effectiveness was not reported, but the LCC evaluation of the planning team was quite positive.

In summary, the RPFO discussion of sustainability was severely limited by a lack of actual data and the unavailability of many predicted values and acceptable ranges, which were either note calculated because they were not required in the previous planning process or could not be retrieved from old computer files that were unreadable.

3.7.3 *Review of Comparison and Trend Analysis of Planned versus Actual Forest Operations*

The IFAPP requires that this assessment of sustainability review the Trend Analysis, which is included as Appendix A of this report. The Trend Analysis is prepared by the forest manager and is intended to identify significant trends in the management of the Forest. The Trend Analysis was prepared in accordance with the requirements of the IFAPP.

Forest Area and Composition

The Trend Analysis describes two changes in areal nature of the Forest. There was a striking increase in the area of the Forest classed as in barren and scattered (B & S) in the 1997 planning term (from 163,693 ha in 1992 to 201,235 in 1997). The Trend Analysis attributes this partly to a new inventory which was delivered in 1992 and used in the preparation of the 1997 FMP, and partly to the lack of an effective free-to-grow

program following the transfer of forest management responsibility from the MNR to HFMI. This caused cutover lands to accumulate in the designation of B&S as the success of regeneration efforts were not being adequately assessed. However, with a proficient free-to-grow program eventually put in place, the area of barren and scattered land declined significantly (down to 168,547 ha in 2002). The large amount of barren and scattered area that remains on the forest is a concern, since it represents 18% of the total production forest, but the audit team expects that most of this backlog area will be addressed by the process for creating the new FRI, which is expected to be completed in 2008. Nonetheless we offer the following recommendation.

Recommendation # 21

That, once the new FRI is complete, HFMI review any remaining backlog NSR areas and ensure that they are scheduled for free-to-grow assessments or re-assessments in a timely fashion.

From 1992 to 2002 there was a decline in total forested land of 53,787 ha (from 1,170853 ha to 1,117,066 ha). The Trend Analysis notes that this change was almost entirely due to landbase withdrawals of 52,468 ha through Ontario's Living Legacy (OLL) process for the creation of new parks and protected areas.

There are relatively minor changes in the area occupied by the Forest's working groups (the largest proportional change is in the poplar working group, which declined by approximately 21,000 ha between 1992 and 2002 – a 14% decline). The Trend Analysis attributes changes in forest unit areas to the OLL withdrawals.

Harvest

Table 3 of the Trend Analysis compares the planned and actual harvest volumes for the Forest from the 1992 plan term to the first four years of the 2002 plan term[23]. Over that period, the planned harvest increased by approximately 37% from 609,904 m^3/yr to 838,200 m^3/yr. However, over that same period the actual harvest declined by approximately 5% from 641,394 m^3/yr to 606,925 m^3/yr. Ninety percent of the planned increase was due to an expectation that that the poplar harvest would rise significantly, from a planned amount of 33,437 m^3/yr in 1992 to 222,446 m^3/yr in the 2002 plan. As is documented in several places in this report, this increase did not occur, in fact the poplar harvest declined by about 24% from 79,293 m^3/yr in the 1992 plan to 60,391 m^3/yr over the first four years of the 2002 plan.

Expected harvest volumes of spruce and jack pine declined by about 4% from 1992 to 2002, from 569,694 m^3/yr to 543,720 m^3/yr. Actual harvests declined by a comparable amount, and for all plan periods documented in the Trend Analysis the actual harvest was very close to planned (98.4% in the 1992 plan period and 98.2% for the first four years of the 2002 plan period).

The Trend Analysis also documents that there was a planned increase in the harvest of other conifer (cedar) from 0 to 31,384 m^3/yr. The cedar harvest of 716 m^3/yr for the first

[23] The Trend Analysis was completed prior to data for the final year of the 2002 plan period being available. These data will be available once the MNR has approved the 2006-2007 Annual Report. The report is due to be submitted to the MNR on Nov. 15, 2007.

four years of the 2002 plan does not come close to meeting the plan's forecast. It was expected that the creation of a volume commitment would lead to higher utilization.

The review of the planned area to be harvested and the actual area depleted is complicated by changes in tracking and defining bypass over the plan periods. Depleted area includes area harvested as well as area planned for harvesting but left (i.e. by-passed) for reasons that include inoperability or other site limitations, insufficient volume, and insufficient size. Data presented in the Trend Analysis show that the planned harvest area was fully depleted for the 1997 plan period and for the first four years of the 2002 plan period. For the 1992 plan period, the actual depletion level exceeded the planned by about 11%, but the Trend Analysis points out that the actual harvest area, which excludes by-pass, is lower than planned.

Given that the volume actually harvested for the first four years of the 2002 plan period is only 72% of planned (838,200 m3/yr planned; 606,925 m3/yr achieved), it is striking that 100% of the area planned to be harvested was depleted. The Trend Analysis identifies bypass of poplar as the main reason for this apparent discrepancy. Bypassed areas are included in the actual harvest areas shown in the Trend Analysis, so considerable areas which are reported as having been harvested may not actually have been cut. The Trend Analysis notes that the Company surveyed the remaining bypass areas in harvest blocks during 2002 to 2004 and that the results of the work, which are anticipated for the year 10 AR, will help shed light on the nature of the by-pass and whether merchantable wood is mistakenly being declared as by-pass. In addition, in this report, we note that there may be problems with the yield curves used for poplar (although they have been adjusted for the 2007 FMP), which contributed to by-pass through the over-estimation of poplar yields.

Silviculture

Table 6 of the Trend Analysis shows data for silvicultural achievements relative to those planned. Section 3.4.3 and Table 5 of this report document that silvicultural achievements for the first four years of the 2002 plan term are on track to meet or exceed the plan's forecasts. The only treatments which have not exceeded the plan's forecast are the CLAAG/Group Seed Tree treatments for natural regeneration and site preparation.

The Trend Analysis notes that achievements of natural regeneration treatments have consistently been less than those planned; the Trend Analysis attributes this to bypassed areas on lowland sites.

The artificial regeneration program, consisting entirely of planting, has exceeded planned levels in all plan terms. With the exception of the 1992 plan term, site preparation activities (not counting slash piling and burning) have met or exceeded the amounts planned (see Table 5 of this report for accomplishments over the first four years of the 2002 plan term). Over the three plan terms, the planned amounts of site preparation have declined from 18,600 ha in the 1992 plan to 14,413 (excluding slash pile burning) in 2002. Similarly the areas planned for tending have declined over the three plan terms. The Trend Analysis attributes this to reconciling the costs associated with site preparation in times of economic difficulties for the forest industry.

Regeneration

Figure 4 and Table 7 of the Trend Analysis provide information on the free-to-grow assessments. The data provided are for the period 1992-1997. The data incorporate the company's standard delay of 5 years for poplar natural and planted jack pine, 7 years for planted spruce and 15 years for naturally regenerated spruce (i.e. CLAAG and GST). The data show that of the approximately 42,000 ha harvested in the period (note that this differs from the depletion area reported in Table4, which includes bypass as well as harvest areas), surveys have yet to be conducted on approximately 32,000 ha. This is because of the time lag for naturally regenerated spruce noted above, which represents about one-half (21,375 ha) of the total harvested area. The remaining unsurveyed area of 11,660 ha represents plantations which are backlog areas requiring survey, or areas that were assessed, but were found to require tending to achieve free-to-grow status, and therefore require reassessment. As noted above, the audit team expects that the process for creating the new FRI will address most of this backlog by providing free-to-grow attributes and stand characteristics for these areas (see Recommendation 22). Of the 9,714 ha surveyed for regeneration success, almost 99% was considered free-to-grow.

3.7.4 Conclusions Regarding Sustainability

The Audit Team's conclusions regarding sustainability have attempted to take several factors into account. Portions of the reviews in Sections 3.7.1 – 3.7.3 contribute to the assessment, but not all aspects are equally relevant. Section 3.7.1 documents that most of the objectives identified in the 2002 FMP have been achieved; those which have not been achieved are generally caught up in the issues related to poplar utilization. The review of the RPFO discussion on sustainability in Section 3.7.2 noted that that portion of the RPFO was not particularly useful as it was severely limited by a lack of actual data, the changing requirements regarding the use of indicators to be used, and the unavailability of many predicted values and acceptable ranges. The review of the Trend Analysis in Section 3.7.3 revealed that the area of forested lands on the Forest is being maintained and that there were no trends which suggest that management of the Forest is unsound. Poplar utilization again appears as a difficult issue.

In addition to the information presented above, the Audit Team draws heavily on the following to base its conclusions regarding sustainability:

- Adherence to the required forest management guides and manuals;
- The harvest and regeneration are in balance and there is no overharvesting on the Forest;
- The implementation of a successful silviculture program;
- The existence of well-considered AOC prescriptions which protect non-timber values of the Forest;
- Concerted and successful efforts on the part of the Company and MNR to engage interested First Nations;
- Adherence to the conditions of the SFL;
- The existence of successful efforts to engage the public in management of the Forest;
- The very high level of commitment and professionalism demonstrated by the Company, its management contractor (Thunderhouse), and their staff; and
- The continued existence of a viable Forest operation in the face of a broad sector downturn.

In addition to the review of the information described above, the Audit Team has also interviewed many people associated with the Forest, spent two days viewing the results of operations on the Forest, and gained a great deal of insight into the management issues of the Forest and the performance of Company and Ministry staff.

Based on the above considerations and the material presented throughout this report, we conclude that the Hearst Forest is being managed within the bounds of sustainability as defined by the MNR and as outlined in the IFAPP.

Notwithstanding the above positive assessment, the Audit Team has identified a number of issues related to management of the Forest, which need to be addressed. These are identified in Table 11 which summarizes the audit's recommendations and suggestions and in Section 4 which summarizes the audit's results.

Forest Management Plan - Replanning

With the implementation of the new (i.e. 2004) FMPM, Forest Management Plans are developed for a ten-year period. The ten-year period consists of two five-year operational plans. Under normal circumstances, the Year Three Annual Report will provide a basis for identifying whether the plan should continue for its full ten-year period or whether a new plan needs to be developed. In addition, the FMPM notes that "at any time during the implementation of a forest management plan, there may be other circumstances…which merit the renewal of the forest management plan prior to the scheduled renewal date." Because the FMPM is new and plans are only now being written for the first time using its direction, there are no precedents as to what might be considered serious enough circumstances to warrant replanning. It is clear, however from the FMPM that such circumstances are expected to be exceptional in nature.

We note that in the next few years there are expected to be a number of significant developments in the Hearst Forest and in Ontario's forest management regime. These developments include:

- It is likely that ownership of Hearst Forest Management Inc. will change as negotiations are on-going to broaden the number of shareholders;
- A new FRI will be available for the Forest,
- Estimates of poplar yields should have improved based on the new FRI;
- There may be changes in the poplar market;
- There may (hopefully) be improvements in economy of the forest resource sector;
- The MNR's landscape and stand and sites guides will be available for implementation; and
- The Province should have released its Caribou Recovery Strategy.

While we are not advocating that replanning occur earlier than presently scheduled, the changes noted above may well cause shifts in the context within which the Forest is managed. While unlikely, it may be, therefore that replanning will be necessary to accommodate the impacts of the changes. It is, obviously premature to draw any conclusions regarding replanning, however we raise the issue to draw attention to this possibility.

3.8 CONTRACTUAL OBLIGATIONS

3.8.1 Payment of Crown Timber Charges

The procedures related to the payment of Crown Timber Charges were administrative in nature and were selected by the Audit Team for omission from auditing, as permitted under the IFAPP.[24]

3.8.2 Forestry Renewal Trust

The required minimum balance was in place at March 31, 2003, but the value of the Forest Renewal Trust for the Hearst Forest fell below the minimum balance for the subsequent four years of the audit period, that is, from March 31, 2004, to March 31, 2007. Several factors contributed to the shortfall in the value of the Forest Renewal Trust:

- In 2003, an audit of some of the cooperative SFLs in the province led to provincial tax being levied on items previously treated as exempt. In the case of the Hearst Forest, the total tax bill was approximately $1 million, which was paid from the Forest Renewal Trust. Approximately $738,000 of $800,000 of the initial amount assessed and paid was refunded in 2005, and there is a court case in process to determine the status of the remaining $200,000.
- A shortfall of projected harvest volumes contributed to below-forecast revenues from harvest operations to the Forest Renewal Trust.

HFMI has worked with its shareholders to develop and implement a system of forecasting revenues to the Forest Renewal Trust that is based on a better estimate of harvest volumes and considers the prevailing market conditions. The measures have proven effective, since, at May 31, 2007, the minimum balance had been restored, along with a surplus.

Recommendation # 22

That HFMI continue to monitor the actual versus forecast revenues to the Forest Renewal Trust to ensure that the minimum balance will be retained as required.

We note that the issues related to maintenance of the Forest Renewal Trust should not reflect on HFMI's silviculture program: we found the program content to be excellent, and the magnitude of the program was appropriate for the site conditions in the Hearst Forest. If poor market conditions continue and revenues continue to be lower than average, there will likely be pressure to reduce silvicultural costs. HFMI is encouraged to ensure that any cost-saving measures which may be considered will not have any negative impacts on silvicultural effectiveness.

We reviewed company records for items invoiced to the Forest Renewal Trust for the years 2002/03 through 2006/07. All invoices for this period were examined and the expenses were found to be eligible and appropriate as per the requirements of the Renewal Trust Agreement. HFMI maintains good documentation of the silvicultural expenses, and maps and records of the treatment projects as required by the licence.

[24] The 2007 IFAPP provided discretion to the auditors to omit a fraction of audit procedures which were classified as administrative in nature.

Reviews of the renewal rates were conducted by the Company and MNR as required by the licence. Rate reviews were conducted annually, and changes to the rates for conifers (spruce, jack pine and balsam fir; red and white pine) were made in 2003 (a slight reduction), 2005 and 2006 (both increases, intended to offset lower-than-expected revenues). In 2003, the rate for cedar was reduced to try to encourage greater utilization. No changes were made to the rates for poplar and white birch during the audit period. As previously noted, the methods for determining renewal rates have been improved in order to address the minimum balance issue.

3.8.3 Forestry Futures Trust

Projects implemented during the audit period using Forestry Futures Trust Funding included pre-commercial thinning, and silvicultural treatments (site preparation, planting, tending) of Category 2 Lands. Four-year achievements include planting of 1,572 ha, cleaning of 836 ha, and 104 ha of pre-commercial thinning. Two sites that had been planted using Forestry Futures Trust funding which were viewed in the field were in need of immediate tending to ensure adequate survival and growth of the planted stock. Tending operations were planned for these areas but issues with the proposal resulting in it being rejected by the committee. This has subsequently been resolved and the funding is expected to be approved next year.

Suggestion # 11

HFMI should ensure that proposals to conduct any required follow-up silvicultural operations on areas that have previously received Forestry Futures Trust Funding are submitted within the required 3-year time frame.

All project reports had been submitted to the FFT as required and were of good quality. HFMI maintains good records and maps for these projects. The FFT has approved all final reports submitted for completed projects. HFMI tracks these projects in their GIS-based silvicultural records for reporting purposes, and to schedule any further treatment requirements or assessments. Accomplishments from these projects were reported in Annual Reports, using separate line items to account for silvicultural treatments that were completed using funds from the Forestry Futures Trust versus the Forest Renewal Trust. This is an excellent practice since it facilitates tracking and scheduling of the ongoing treatments in these areas.

We verified a sample of these treatments during the field audit, and found that the work had been completed to a good standard. A significant proportion of the work completed through some FFT-funded projects was completed by First Nation employees working for the contractors who completed the work. This provided many social and economic benefits to the Hearst Forest communities.

3.8.4 Specified Procedures Field Assessment

We conducted a field assessment of approximately 20% of the total area of silvicultural treatments that were invoiced to the Forest Renewal Trust for the year 2005/06. Our field assessment also included 23% of the areas surveyed for free-to-grow status in 2005/06. In all cases the treatments were in place as mapped in the Annual Reports, were appropriate for the site conditions, and had been implemented to a good standard of

quality. We verified the free-to-grow status of all the areas we checked, as well as a sample of the FRI stand descriptions generated during the Company surveys.

The Specified Procedures report for the Hearst Forest, prepared by KPMG, identified a number of vague items but did not identify any significant errors in the documentation for the Forest Renewal Trust. We checked documentation for the vague items and all were found to be eligible expenses.

3.8.5 Wood Supply Commitments

The SFL identifies a series of commitments to three hardwood users. The poplar veneer is shared by Columbia Forest Products, which owns the Hearst veneer mill, known as Levesque Plywood, and Longlac Wood Industries, which has a veneer mill in Longlac. In addition, 1,000 m^3 of birch veneer is committed to the Levesque Plywood mill. The poplar OSB component is committed to Grant Forest Products' Englehart mill (115,057 m^3/yr) and LWI (18,000 m^3/yr).

The SFL requires each commitment holder to negotiate a Memorandum of Agreement (MOA) with HFMI to provide more specificity about the business arrangements to make the commitment work smoothly. MOA's have been negotiated with Columbia and LWI but not with Grant. There were two MOA's signed with LWI in 2004, one for the commitment volumes and the second for volumes of balsam poplar, and access to unutilized larch, cedar and white birch. HFMI has had a standing MOA with Columbia since 1995. On August 30, 2007, Columbia and HFMI signed a revised MOA that is consistent with the more recent LWI MOA's.

The terms of the wood supply commitments rarely provide direction regarding transaction price, and they may sometimes generate disputes regarding under what conditions the wood may or may not be provided. (Hence the importance of the MOA.) In the case of the Hearst Forest, the 2002 IFA reported that a significant business dispute was creating problems for poplar utilization, and this issued continued to linger at varying levels of intensity, throughout the 2002 FMP period. The 2002 FMP was "bumped up" by Grant Forest Products, which led to harvest restrictions being in place until October 9 2002, when the request for an individual environmental assessment (EA) was denied. One of the major bases for the request for the individual EA was that the two-pass harvesting system was widely used on the Forest, which led to waste and poor utilization. (The two-pass harvest system is discussed in this report in Section 3.4.2).

During the period of time that the request for the individual EA was being reviewed, the parties had a number of meetings. The meetings yielded the following action items:

- it was a high priority of MNR to move to a single pass harvest system; and
- Grant and HFMI were directed by the MNR Regional Director to enter into a long-term MOA.

The request for an individual EA, and the resulting rounds of discussion and issue resolution meetings, galvanized the MNR and HFMI to try to conclude MOA's. As indicated above, an MOA was agreed upon with LWI and signed in 2004. However, negotiations with Grant went on for an extended period of time, with HFMI developing nine draft versions of the MOA. The negotiators for Grant felt that the ninth draft might

be acceptable and it was provided to their senior staff for review. This review led to a request for two additional conditions, which were deemed unacceptable by HFMI and effectively stalemated the negotiation process. A mediator was unable to make any progress. It is noteworthy that HFMI came back to LWI in 2006 with some suggested improvements to the MOA, based on the negotiations with Grant, and LWI accepted these and revised the MOA in 2006.

Recently, corporate MNR has declared its intention to convert a number of SFL's (including the Hearst Forest) to "cooperative" SFL's, and ideally this entails bringing all wood-using parties into the partnership. At the time of writing this audit report negotiations are on-going.

There is guarded optimism that the agreement for a cooperative SFL will create a smoother working relationship, which should translate into more efficient harvest and better utilization practices. However, the audit team notes that the cooperative SFL will not alter the fact that the Hearst Forest will remain a distant OSB supply source for both Grant and LWI. Thus, pressures over pricing will not change, at least until general business conditions change, and the potential for disputes and poor utilization persists.

While wood supply commitments are intended to facilitate the movement of wood, they represent options on the committed supply volume that cost nothing to retain. During the last two years (as well as in previous years), Grant indicated to HFMI that it intended to use its full commitment (of 115,057 m^3/yr) but it took only 6,000 m^3 in 2005/06 and even less in 2006/07. If a commitment is unexercised, or only a relatively small amount of it is taken, the unused committed wood is effectively frozen. Other parties who may be able to use the wood cannot do so, and the SFL-holder is constrained in its ability to implement the approved management plan and move the Forest along the desired trajectory. The province, communities with mills and contractors, and the SFL-holder itself all lose out on potential economic benefits. As the discussion in the Section 3.4.2 indicated, the fall-off in demand for OSB poplar created substantial management challenges for HFMI in the latter years of the 2002 FMP term. Once the commitment holders scaled back their use of OSB poplar, HFMI was unable to find alternate users because of the commitments.

It does not appear that the commitments were especially helpful in supporting the harvest during the 2002 plan term, since the fulfillment of the committed volumes was rather poor. Data from the first four years of the period shows that LWI obtained 36% of its committed volume, Columbia 34% and Grant 21%. As described above, the hardwood harvest was negatively impacted by a decline in OSB wood demand in 2005/06 and 2006/07, driven by the declining level of activity in the US housing market. Grant locked out its workers at its Timmins OSB mill in September 2006, reducing its use of OSB poplar, and LWI has also greatly decreased its OSB production. Because the Hearst Forest is quite distant from Englehart (the site of Grant's OSB mill that holds the commitment), and from Longlac, reductions in demand are quickly translated into lower prices at the more distant wood sources.

While we do not know what the terms of the new SFL shareholders agreement will look like, should one be concluded, based on the evidence we collected during the audit, we feel that it should contain a number of conditions in order for it to be effective. These are described below in Suggestion # 12.

Suggestion # 12

That the cooperative SFL-shareholders agreement contain the following provisions:

- **fair pricing and cost allocation formulae;**
- **a mechanism to ensure that wood users follow through on short-term use and pricing commitments;**
- **a use it or lose it provisions for timber share;**
- **empower HFMI to find alternate markets if shareholders do not make timely use of the wood; and**
- **an effective dispute resolution process.**

If the parties cannot agree on the terms of a cooperative SFL-shareholders agreement, other approaches are available to improve the utilization of hardwood. The audit team feels that HFMI was constrained in its ability to find willing users of the hardwood by the wood supply commitments and related business arrangements. If HFMI had leeway to find other users for the poplar, this could empower HFMI to improve the utilization of the hardwood harvest. The audit team notes that there is a biomass-using cogeneration facility almost directly across the road from areas where poplar was felled and left in the bush. The audit team would further recommend that MNR reconsider wood supply commitments which are habitually greatly under-utilized.

Recommendation # 23

That Corporate MNR review and revise (including possible reduction or elimination) the hardwood wood supply commitments and related business arrangements on the Hearst Forest to improve utilization of the hardwood resource.

The audit team recognizes that it may seem harsh to reduce or revoke a commitment during an industry downturn but the Ministry should not lose sight of the fact that even in better conditions (e.g. 2004 & 2005, when OSB prices were very high), the average volume taken under some of the commitments has been well below the committed level.

3.8.6 Monitoring Obligations

Free-to-grow Assessments

The Company is meeting their obligations with respect to conduct of free-to-grow surveys. For the 2002 FMP term, the forecasted area for free-to-grow assessment was 62,762 ha. After four years, the area assessed was 46,093 ha, or 92% of the four year forecast (i.e. 92% of four-fifths of the five-year forecast) which was conducted during the FMP term. As previously stated, field work to be conducted this year for the inventory update for the Hearst Forest is expected to significantly reduce the amount of area that needs to be assessed for free-to-grow status.

The free-to-grow status of treated sites (including natural regeneration areas) is tracked in HFMI's silvicultural system for the annual scheduling of assessments. Assessed areas that do not meet the silvicultural standards re-enter the system and are scheduled for further treatment or re-assessment at a later time, as appropriate. HFMI has conducted a good analysis of their free-to-grow data for use in preparation of the 2007 FMP.

Silvicultural Exceptions Monitoring

During the audit period, commercial thinning was conducted on 147 ha, including a jack pine and a white spruce area. In collaboration with MNR, HFMI established and implemented a good monitoring program. Funding from the Forest Renewal Trust supported the planning and implementation of the monitoring. Reporting on the results of this monitoring to MNR was completed annually as required.

3.8.7 Treatment of X, Y, and Z Lands

The Company is meeting their silvicultural and survey obligations with respect to Category 2 Lands. The original area of Category 1 and 2 Lands referenced in the Hearst SFL licence document was 42,767 ha. Of this total area, 26,425 ha was in Category 2, which require that surveys, or silvicultural treatments if required, be completed by HFMI. From 1999 to 2005, HFMI completed regeneration surveys on 14,064 ha. Additional areas in Category 2 Lands have received silvicultural treatments, using funding from the Forestry Futures Trust Fund. During the period from 2002 to 2005, tree planting was conducted on 2,220 ha, of which 1,572 ha was site prepared. Cleaning was conducted on 836 ha. The remaining areas of Category 2 Lands (approximately 9,0000 ha) are awaiting regeneration assessments. The status of all Category 1 and 2 Lands is tracked by the Company in a digital database, which includes the results of surveys and recommendations for silvicultural treatment needs.

3.8.8 Previous Independent Forest Audit

The previous IFA was undertaken in 2002. The recommendations of that audit and the actions taken to address them are identified in Table 10.

Table 10. Review of the implementation of recommendations made in the 2002 Independent Forest Audit of the Hearst Forest.

Recommendation/Suggestion	Actions Taken	Status
1. HFMI continue to develop more comprehensive policies, procedures and corporate controls to ensure delivery of its sustainable forest management policies by all of the companies and individuals operating on the HF; these should be made more widely available.	Action Plan identified four actions: 1) HFMI will sign a formal contract with Thunderhouse; 2) Job descriptions will be developed; 3) HFMI Board will complete statement/policies that will express and clarify HFMI's role 4) HFMI will circulate policies to the directive holders, post policies on their web site and within the office and provide copies at all formal events	Complete
2. That OMNR Hearst continues to pursue a mutually agreed-upon approach with First Nations on how native values will be collected, maintained and shared.	The MNR has taken a number of steps to ensure open dialogue continues to occur between the First Nations and the district. There have been a number of workshops and meetings with both communities to ensure a venue for bringing concerns and updates on values occurs.	Considerable progress has been made.
3. That HFMI ensures that the forest resource inventory is	For the 2007 FMP, HFMI updated the planning inventory by incorporating panned and actual	In process – acceptable

Recommendation/Suggestion	Actions Taken	Status
accurate and updated on a continuing basis.	depletions, natural disturbances, and free-to-grow survey information as required. A new FRI for the Hearst Forest is in process, and is expected to be completed in 2008. This FRI will be used in the preparation of the next FMP, and will likely be used to update the operational plan for the 2012-2017 period.	interim actions were taken prior to availability of the new FRI, and the requirements have been met.
4. OMNR corporately should coordinate the approach to other raptors to ensure province-wide consistent direction for stick nesting hawks and falcons. In the interim, Hearst District should train staff and apply an agreed upon locally determined minimum reserve around stick nests.	It is anticipated that the new Stand and Site guide (due for release in 2008) will provide consistent provincial direction. Considerable work has been undertaken locally. The 2007 FMP team developed a generic stick nest AOC, and two additional AOC prescriptions – one for small stick nests and another for large stick nests.	The local aspect of this recommendation has been addressed. The corporate aspect should be addressed with the release of the Stand and Site Guide.
5. That HFMI and OMNR decide whether specific AOC identifiers on maps are required for proper tracking of compliance and application of AOC prescriptions, and facilitation of review by outside observers.	Standard symbology (letters) were applied to each particular AOC and linked to an AOC summary list with the standard AOC prescriptions. AOCs do not have to be numbered and listed in AOC supplementary documentation according to the new FMPM.	Complete
6. That non-timber compliance observations be included in FOCIS, preferably with more maps and photos.	FOIP reports are very detailed and include maps and photos of sites inspected. Detail and description in compliance reports has improved over time.	Complete
7. That OMNR continue its lead role in dealing with the legacy of old substandard water crossings by completing the inventory of culverts and bridges, and determining responsibility for each.	The water crossing inventory has been completed. As outlined in Section 3.4.6 of this report, the company has responsibility for about two-thirds of the water crossings and the MNR has responsibility for about one-third.	Complete
8. That HFMI and OMNR review cross drainage procedures and ensure that adequate training, implementation and monitoring are in place	On the roads inspected by the audit team, only minor and very occasional issues with cross drainage were observed. In general, given the nature of the Forest, the audit team is satisfied that cross drainage is being managed well.	Complete
9. As long as low grade aspen on the HF continues to be poorly utilized because of a continuing business disagreement, we recommend that OMNR corporately review timber harvest allocations to ensure that the best	The 2002 IFA provided impetus to develop memoranda of understanding between the hardwood users (Columbia Forest Products, Longlac Wood Industries and Grant Forest Products) and HFMI. An MOA was concluded in January 2004 with Longlac Wood Industries (LWI) but agreement could not be reached with Grant. Nine or ten drafts were produced by HFMI; including one that the Grant negotiators agreed to	Aspen utilization was poor in 2002 due to the bump-up of the 2002 FMP, quite good during 2003 and 2004 as OSB markets remained strong.

Recommendation/Suggestion	Actions Taken	Status
possible social economic and environmental benefits are obtained.	send to Corporate legal counsel for checking and approval. The review resulted in request for alterations, two of which were not acceptable to HFMI. This resulted in a stalemate. More recently, it is hoped that negotiation of a cooperative SFL will lead to mutually agreed upon and improved business relationships	but declined in 2005 and 2006 as OSB markets deteriorated. Negotiations for a partnership SFL continue at the time of writing.
10. That OMNR and HFMI develop a comprehensive solution to the management of unused aspen volumes at roadside.	The audit team did see unused aspen volumes in the bush but not at roadside. Utilization continued to be problematic throughout much of the audit period.	As above
11. That HFMI review the use of CLAAG and GST renewal prescriptions on transitional or upland sites to ensure that these treatments are correctly applied and recorded.	In the course of normal operations, CLAAG and GST treatments are prescribed by HFMI only for lowland sites, where these treatments have the greatest chance of success. CLAAG and GST treatments are occasionally used on transitional or upland sites where there are no feasible alternatives for artificial regeneration, such as adjacent to AOCs where there are operational restrictions to protect values. Actions taken by the company to improve recording include the following. Harvest foremen now have a more formal process of informing HFMI of prescription changes. HFMI has increased the intensity of field assessments to support Annual Reporting. The SFL examines harvest blocks with contractors to review the proposed application of the regeneration prescription. To improve application, pre-start-up meetings are held that focus on regeneration prescriptions. Harvest foremen are informed about how to recognize when a prescription should be changed and that they should consult with the SFL when changing prescriptions. Field inspections are conducted with foremen and HFMI compliance technician, and monthly updates of prescriptions on the ground in harvest blocks are provided to HFMI. Prior to the preparation of Annual Reports, field verification visits are made on post-harvest sites to verify treatments and ensure accurate reporting. Notes of field visits are documented.	Complete
12. If lowgrade aspen cannot be utilized, the audit team recommends that hardwood regeneration be the subject of increased monitoring by HFMI.	Hearst District MNR, in collaboration with HFMI, has initiated a study of aspen natural regeneration on clearcut sites with varying amounts of hardwood residual components. This study is ongoing as part of the District SEM monitoring requirements.	In process – requirements have been met.
13. That HFMI should ensure that aerial applicators	All contractors conducting aerial herbicide applications on the Hearst Forest utilize GPS	Completed

Recommendation/Suggestion	Actions Taken	Status
working on the HF have functional and accurate electronic navigation systems on board each aircraft. Further, these systems should be capable of providing HFMI with an accurate printout of each spray session.	navigation systems, and provide GPS tracks to HFMI upon completion of contracts every year.	
14. That HFMI create procedures for minimizing the loss of productive land and potential wood supply due to grubbing during road construction.	HFMI proposed to conduct surveys to assess loss of the landbase due to these activities. HFMI indicated that SFMM showed no negative impacts to wood supply for the 2007 Plan, based on road area estimates ranging from 2 to 8% of harvested area. HFMI has not yet conducted surveys to determine actual areas associated with these activities. HFMI proposed to work with operators on the Hearst Forest to improve practices to minimize the loss of productive land once the surveys were completed and the results known. This is incomplete - HFMI has communicated the concern to Tembec and Lecours, but no long-term strategy has been developed, pending the completion of surveys and/or other assessments.	Incomplete
15. That HFMI install signs on landmarks, primary and secondary roads to improve safety and efficiency.	HFMI has signed the roads on the Forest and will sign new roads as they are constructed. HFMI has also undertaken to number and sign all watercrossings on the Forest to help in their consistent identification.	Complete
16. That HFMI develop a training requirement for personnel working in planning or operations on the HF.	HFMI has an informal process where staff identify training they require over and above the regular FMP training or local training sessions. Each staff member is budgeted a total of one week of out of town training per year. HFMI training records indicate staff adequately trained to complete assigned tasks. The three main HFMI planning and operations staff are RPFs with suitable training. A performance appraisal system is planned, but not yet in place.	Complete
17. That HFMI ensure that computerized HF information is backed up on a regular and frequent basis.	Weekly backups are made on a regular basis and are stored off site.	Complete
18. That HFMI submits compliance inspections on time.	No specific inspection reporting timeframe problems were noted in this audit. HFMI reporting is honest and accurate.	Complete
19. That HFMI examine its methodology for conducting free-to-grow surveys and that the methodology be revised to include more	Hearst District MNR, in collaboration with HFMI, has initiated a study to determine the accuracy of aerial surveys to determine free-to-grow status and FRI attributes, by conducting ground surveys on areas that were assessed from the air. This study	Completed

Recommendation/Suggestion	Actions Taken	Status
ground calibration.	will determine the appropriate level of ground calibration that is needed to achieve a desired level of accuracy. Initial results indicate that the aerial surveys provide results comparable to the ground surveys.	
20. That HFMI continue to improve its monitoring efforts on naturally regenerating stands, including winter access stands, to ensure that stocking, survival and growth are occurring at predicted levels.	Hearst District MNR, in collaboration with HFMI, has initiated several studies of natural regeneration on sites where CLAAG and GST prescriptions had been applied, including some with winter site preparation (shearblading), to assist in determining successional pathways for these situations, as well as the levels of regeneration of black spruce, cedar, larch and other species that can be expected to ingress over time. A report of the results to date "1999 Silviculture Effectiveness Monitoring - Project Analysis and Results" is available from Hearst District MNR. Initial results indicate that in most cases the prescriptions are meeting both the minimum and desired standards associated with the respective SGRs for these treatments, with the exception of some older sites (pre-1990), where the treatments were conducted to a different standard than would currently be used.	In process – requirements have been met.
21. That HFMI rationalizes discrepancies in Annual Reports, the most recent RPFO and the trend analysis provided in support of this audit.	The company undertook an analysis of the apparent discrepancies. Only minor differences were found and the company explained those in a brief document. The minor differences which existed have no bearing on forest management direction or assessment.	Complete
22. That OMNR submit to HFMI a list of all patent claim holders. Further, that HFMI ensure that patent claim holders are informed thirty days in advance of any activities that will be occurring on the site.	The audit team verified that patent claim holders were informed of planned operations consistent with the requirements of the FMPM	Complete
23. That the Minster of Natural Resources signs an SFL with HFMI. Further, we recommend that this SFL contain specific provisions to ensure that memoranda of agreement are developed between the SFL holder and the commitment holders to ensure effective utilization of timber products on the HF.	An SFL has been signed. Appendix E required that memoranda of agreement be signed between HFMI and each of the three poplar commitment holders. MOA's were signed with Columbia and LWI, but not with Grant. Negotiations for a partnership SFL continue at the time of writing.	The MOA portion of this recommendation is being dealt with through negotiations to develop a partnership SFL.. font

Almost all of the recommendations made in the previous audit have been addressed or are being addressed through on-going processes. The lone exception to this is Recommendation 14 which required HFMI to ``create procedures for minimizing the loss of productive land and potential wood supply due to grubbing during road construction.`` We note that this issue identified by the recommendation recurs in this audit as Recommendation # 17. We trust that HFMI will act more diligently on the issue of loss of productive land as it has now been raised by successive audits.

3.8.9 Mining Claims

Consistent with the forest management planning requirements, letters were sent to all mining claim holders on the Forest informing them that the plan was being prepared and providing an opportunity for the claim holders to review the areas where operations were planned. No responses were received.

3.8.10 Licence Conditions

Appendix F of the SFL contains three conditions that are all related to harvest allocation. The first specifies that Marcel Lacroix will be provided with an opportunity to harvest a target volume of up to 6,515 m^3 of conifer per year (32,575 m^3 in the five-year period), and the second stipulates that Constance Lake First Nation, or a suitable representative to act on behalf and for the benefit of Constance Lake, will be provided with an opportunity to harvest a target volume of up to 13,030 m^3 of conifer per year (65,150 m^3 in the five-year period). In both cases, the timber is to be sold to either Tembec or Lecours Lumber. Constance Lake was represented by Mammamattawa during the 2002 FMP period, and this company was recently renamed Amik Logging. The 2002 FMP made provision for a total of 38,000 m^3 for Marcel Lacroix, while Mammamattawa was provided with a total of 58,654 m^3, but the plan noted that an expected carryover was to be amended into the plan to provide the targeted amount. In the 2007 FMP, volumes of 33,633 m^3 and 69,344 m^3 were allocated to Marcel Lacroix and Amik, respectively, meeting the conditions of the SFL. After four years in the 2002 FMP period, Marcel Lacroix had harvested almost 43,000 m^3 of conifer while Mammamattawa had harvested 67,000 m^3. Both were already well above the volume levels specified in the SFL conditions. In addition, Tembec and Lecours contracted Mammamattawa to cut part of their allocations; most recently, Mammamattawa had harvested an additional 85,000 m^3 though contracting.

The third condition concerns the division of the conifer volume between Tembec and Lecours. The 2002 FMP proposed that the two companies would negotiate a division of the allocated harvest blocks during the first several years of the FMP, and the two companies developed a protocol for block allocation that was to be used during the 2007 plan period to allocate harvest areas. The two companies appeared to have a respectful working relationship and did not express any concern regarding allocations.

3.8.11 Licence Extension

The SFL for the Hearst Forest requires that an independent review team conduct a review of the Company's compliance with the terms and conditions of the licence for the period April 1, 2002 to March 31, 2007 and recommend to the Minister whether the term

of the licence should be extended for five years. This audit satisfies that licence requirement.

The audit team believes that the management of the Hearst Forest was in substantial compliance with the laws, licences and Forest Management Plan in effect during the audit period. The Hearst Forest is being managed within the bounds of sustainability as defined by the MNR and as outlined in the IFAPP.

Recommendation # 24

That the Minister of Natural Resources extend the term of Sustainable Forest Licence #550053, held by Hearst Forest Management Inc. for the Hearst Forest, for an additional five-year period.

4 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

This audit reviewed the management of the Hearst Forest for the period April 1, 2002 to March 31, 2007. The audit included examination of the content of the 2002 FMP and the 2007 FMP, the implementation of the 2002 FMP, and the process of preparing the 2007 FMP.

This audit makes 24 recommendations (one of which is to extend the licence) and 12 suggestions (Table 11) and identifies several best practices. In general the audit team has a very favourable impression of the management of the Hearst Forest as it is being implemented by HFMI and the Hearst District MNR. During the audit we encountered no serious situations which negatively impact the sustainability of the Forest. Important issues over the course of the audit period for the Forest, as noted throughout this report, were dealing with the new planning requirements which came into place with the 2004 FMPM, the nature and utilization of the poplar supply, and managing the Forest's caribou.

The additional effort required to implement the 2004 FMPM contributed to planning delays in the development of the 2007 FMP. Although the plan was ultimately delivered on time, the path from planning team formation to ultimate plan production was not always smooth. Most notable was the consternation around the achievement of planning checkpoints. The use of checkpoints while intuitively very logical for the development of such complex plans, needs some refinement.

The Forest is capable of growing very high quality poplar but there are several factors which affect its management. As discussed in several places in this report, these factors relate to inventory uncertainties, poor markets for OSB, the isolation of the Hearst Forest relative to processing facilities, and the government-mandated commitments for poplar contained in the SFL agreement.

Woodland Caribou are a Threatened species in Ontario. With this classification comes a legal and societal obligation to manage for the species' well being. Caribou numbers in the Forest are low, and they are very sensitive to interactions with people. This creates a difficult environment in which to manage caribou and to see a positive response to management.

The distribution of recommendations relative to the audit principles provides broad insight into the aspects of forest management most in need of attention. Of the 24 recommendations identified in this audit, about half are related to forest management planning while only five are related to plan implementation. This reflects the Audit Team's impression that forest management operations are generally well done, while some planning aspects of management are in need of attention.

Another way to assess the audit's findings is to look at the distribution of audit recommendations relative to the two organizations (HFMI and the MNR) which were being audited. Of the 24 recommendations 11 are directed solely at the Company, two at the MNR District, four at the District and the Company jointly, and seven at MNR's Corporate and Regional offices. This distribution reflects the broad partnership in management of the Forest between the MNR and the Company. No single agency bears a disproportionate burden in addressing the shortcomings.

Although analysis of the distribution and number of recommendations and suggestions provides some insight into the overall assessment of the Forest, the Audit Team urges readers not to focus disproportionately on the number of findings. As noted earlier, the Audit Team has a favourable impression of the management of the Forest. The findings do not identify any egregious issues related to forest management, rather we believe they identify ways of making a good management regime better. The Audit Team draws attention to the highlights of the Forests' management:

- The LCC has been effective in providing input into management of the Forest;
- The broad public consultation which was undertaken to solicit input into planning was exemplary;
- The Company and MNR have been successful in facilitating the involvement and economic interests of Constance Lake First Nation;
- A generally effective silviculture program has been implemented;
- There is an excellent working rapport between the company and the MNR; and
- There is a very high level of dedication on the part of the company employees, all of whom expressed sincere desires to maintain a productive and healthy forest.

The good working rapport not only facilitates good forest management, but it is also a product of good forest management. The good rapport also emanates through the community. The response to our attempts to solicit public input were mostly positive – this is not usually the case. The Company's efforts at soliciting public input, and the open manner in which the LCC functions are two indications that the Hearst Forest is very much a community's Forest.

As all audits do, this audit found some aspects of forest management in need of improvement; key elements are summarized below.

- **Values** – Corporate MNR needs to invest in better collection of values information to meet the corporation's stewardship responsibilities;
- **Forest Benchmarks** – The characterization of the historic forest in the 2007 FMP should be improved in subsequent efforts to establish natural benchmarks;
- **Maintaining the landbase** – The company need to investigate ways to reduce loss of productive forest area due to road construction and slash accumulation;
- **Forest Management Planning** – Several issues were identified associated with development of the FMP, Annual Reports and Annual Work Schedules. The most significant is that documents were made available for public review prior to the final versions being prepared.
- **Corporate MNR Impediments** – Corporate MNR needs to address some aspects of its management program to reduce impediments to appropriate forest management; these include providing appropriately-timed adequate funding for collection of values; removing impediments to the use of commercial thinning as a silvicultural tool; and releasing the final version of the Caribou Recovery Strategy.

In general this audit finds that the company performed well over the audit period. The level of non-compliances related to field operations is low and well within the bounds normally considered to be acceptable. The silviculture program is effective and has been well-implemented. The company complied with the contractual obligations identified in the Sustainable Forest Licence. The audit finds that the forest has been managed sustainably and recommends extension of the licence for a further five-year period.

Table 11. Suggestions and Recommendations from this Audit.

Principle: Commitment
No Suggestions or Recommendations
Principle: Public Participation
Suggestions: 1. The LCC should consider whether it would like to play a role in the amendment pre-approval process by having one or more members participate in the screening of amendments categorized as administrative. 2. The MNR should commit to funding the Native Liaison position in Constance Lake as a full time position. **Recommendations:** None
Principle: Forest Management Planning
Suggestions: 3. The Planning Team for the next FMP should revise the means used to estimate the historic forest, ensuring that there is consistency between the old-growth targets and the disturbance dynamics used in the plan's modeling. 4. The Company should consider requesting separate identification of balsam poplar in its new forest inventory where it is feasible. 5. That HFMI continue to explore and undertake commercial thinning operations on the Hearst Forest when market conditions permit. 6. Corporate MNR in collaboration with MNR Region and SFL holders should review the use of the checkpoint system and identify opportunities to improve its use. 7. The Company and MNR District should record key FMP and AWS submission, review and approval dates. Corporate MNR should continue to review and improve the FI Portal summaries and functionality so they clearly document the submission, review and approval status of all planning documents.

8. Corporate MNR should consider revising the AWS submission deadline from December 31, to January 15.

Recommendations:

1. That HFMI and the MNR District ensure the list of plan contributors, including all plan reviewers is reported accurately in the next FMP.

2. That HFMI and MNR amend the 2007 FMP to add the required statement of commitment to the tourism sector, the required statement that RSA's do not limit the Minister's land use decision-making ability, and an up-to-date map of Tourism Values.

3. That Corporate MNR finalize the Caribou Recovery Strategy and the Caribou Conservation Framework and provide resource managers with the means to implement them.

4. That the Company review the strategies for individual roads in the supplementary documentation and ensure that they incorporate requirements for access control where they will be used to access caribou blocks.

5. That Corporate MNR ensure that funding for values collection is made available more frequently to maintain currency of information used in values protection.

6. That HFMI review and amend the 2007 FMP to ensure that consistent figures are used for the AHA and planned harvest levels throughout the FMP.

7. That Corporate MNR expedite efforts to remove or greatly reduce the current obstacles to commercial thinning, including reducing or removing Crown charges on thinned material, and changing its status in the silvicultural guides.

8. That Corporate MNR encourage the application of CT and coordinate a provincial system to monitor its impacts in boreal Ontario.

9. That MNR specify training requirements and delivery methods related to implementation of monitoring for the osprey AOC exception and ensure that the monitoring protocol is appropriately amended.

10. That MNR and HFMI ensure that the final list of required alterations prepared for the next FMP includes an explanation of how all required alterations have been addressed.

11. That MNR and HFMI ensure that the required FMP and AWS components are available for public review prior to notices being issued, starting review periods and holding information centres.

12. That HFMI ensure that that complete copies of all amendments and revisions are kept in its office. The complete copies should include the original proposals, the reviews, the final approved amendments including maps, the approval sheets, and the public and LCC reviews.

Principle: Plan Implementation

Suggestions:

9. HFMI should consider updating the Site Disturbance Training Manual used for training its contractors.

Recommendations:

13. That the Company redevelop the measures intended to restrict access along road B-1 to ensure that the original intent of the AOC prescription is fulfilled. The Company and MNR should subsequently monitor the success of the measures.

14. That HFMI develop and implement procedures to minimize undue site disturbance on lowland sites in years when the ground freeze-up is late.

15. That HFMI develop a more formal system of tracking tending needs on lowland sites from year to year, to ensure that any sites requiring cleaning are treated at the earliest opportunity.

16. That the Company review the adequacy of training for grader operators and those forest workers involved in use and management of gravel pits.

17. That HFMI take measures to reduce the loss of productive forest area due to road construction and slash accumulation.

Principle: Systems Support

No Suggestions or Recommendations

Principle: Monitoring

Suggestion:

10. The Company should provide more discussion and details of the implications of operations results in the Annual Reports.

Recommendations:

18. That MNR District fulfill its compliance monitoring obligations and meet the inspection targets identified in the forest compliance operations plans.

19. That HFMI correct any mapping errors associated with Site #22 in their GIS system, ensure that all areas contained within this site are fully regenerated, and ensure that reporting of the activities in this area is accurate.

20. That HFMI develop and implement a system of quality assurance to ensure that field data related to silvicultural activities is correctly entered into their GIS system.

Principle: Sustainability

No Suggestions

Recommendation:

21. That, once the new FRI is complete, HFMI review any remaining backlog NSR areas and ensure that they are scheduled for free-to-grow assessments or re-assessments in a timely fashion.

Principle: Contractual Obligations

Suggestions:

11. HFMI should ensure that proposals to conduct any required follow-up silvicultural operations on areas that have previously received Forestry Futures Trust Funding are submitted within the required 3-year time frame.

12. That the cooperative SFL-shareholders agreement contain the following provisions:
    - fair pricing and cost allocation formulae;
    - a mechanism to ensure that wood users follow through on short-term use and pricing commitments;
    - a use it or lose it provisions for timber share;
    - empower HFMI to find alternate markets if shareholders do not make timely use of the wood; and
    - an effective dispute resolution process.

Recommendations:

22. That HFMI continue to monitor the actual versus forecast revenues to the Forest Renewal Trust to ensure that the minimum balance will be retained as required.

23. That Corporate MNR review and revise (including possible reduction or elimination) the hardwood wood supply commitments and related business arrangements on the Hearst Forest to improve utilization of the hardwood resource.

24. That the Minister of Natural Resources extend the term of Sustainable Forest Licence #550053, held by Hearst Forest Management Inc. for the Hearst Forest, for an additional five-year period.

Conclusion

The Audit Team believes that the management of the Hearst Forest was in substantial compliance with the laws, licences and Forest Management Plan in effect during the audit period. The Hearst Forest is being managed within the bounds of sustainability as defined by the MNR and as outlined in the IFAPP. The Minister of Natural Resources should extend the Sustainable Forest Licence held by Hearst Forest Management Inc. for a further five-year period.

Appendix A: Comparison and Trend Analysis of Planned Versus Actual Forest Operations Reports for the Hearst Forest

The Trend Analysis Report which follows as Appendix A was produced by Hearst Forest Management Inc. Although the Report was reviewed by the Audit Team, the Audit Team had no role in writing it.

2007 Trends and Analysis Report

for the

HEARST FOREST
S.F.L. 550053

Hearst District, Northeast Region
Hearst Forest Management Inc.
Hearst, Ontario.

for the 15-year period from April 1, 1992 to March 31, 2007

Seal

Eric Thompson, R.P.F.

28/11/07
date

APPENDIX C

TRENDS ANALYSIS FOR THE HEARST FOREST 1992-2007

Hearst Forest Management Inc. (HFMI) which holds the Sustainable Forest License (SFL) was the author of all of the Timber/Forest Management Plans (FMP) being examined during the terms in this Trends and Analysis i.e. 1992-1997, 1997-2002, and 2002-2007. No changes to the actual physical landbase have occurred to the boundaries of the Hearst Forest, however a new inventory was produced for the 1992-1997 Timber Management Plan (TMP) and the SFL gained the ability to manipulate the digital information in this inventory for the 1997 FMP. It should also be mentioned that allowable harvest was calculated for all 3 plans using different processes or models i.e. MADCALC for 1992 plan, and different version of the SFMM for the 1997 and 2002 plans.

As the final numbers were not in for the 2006-2007 year of the 2002 planning term when this report was done during the summer of 2007, some of the numbers for this term were not inserted in the associated tables and are presented as 4 year totals. In accordance with Appendix C page C-2 of the Audit Protocol, numbers for area where the final year annual reports have not yet been prepared are not to be estimated. This applies to tables 3, 4 and 6 of this Trends and Analysis Report.

Summary of Total Area Under Management

A new inventory was produced for the Hearst Forest and delivered to Hearst Forest Management Inc. for the 1992 TMP Planning process. The inventory was actually delivered untimely and a contingency plan was needed for the 1992 to 1993 year. As a result, a wide variation in some of the numbers between the 1992 term compared to the 1997 term, see Table 1 Summary of Total Area Under Management. See also Figure 1.

The only trend seen in Table 1 lies with the variation of area in Barren and Scattered (B&S). B&S had a significant jump in the 1997 planning term not only as the result of a new inventory, but also because of the lack of an effective free to grow (FTG) program following the transfer of the forest management responsibility from the Ministry of Natural Resources (MNR) to the SFL. This in turn caused cutover land to accumulate and not be assessed for FTG status. The lack of a FTG programs during the 1992 term consequently resulted in the decrease of area in production forest by working group as shown in Table 1 and in Figure 1. However, this trend has been corrected with the increase in the FTG program during the subsequent terms that shows a cross over of B & S areas back into production forest in the 2002 term. In 1997 a joint project was undertaken by the Hearst MNR District office and HFMI which assessed 79,365 ha and 74,790 ha of this was declared FTG.

Also, as a result of the Ontario Living Legacy (OLL) process, 52,468 ha were withdrawn from the operable area of the Hearst Forest to contribute to the provinces parks and protected areas. This also contributed to the reduction of B & S area.

2007 Independent forest Audit

Table 1 - Summary of Total Area Under Management
Past and Current Plans - Crown Managed
Management Unit Name: Hearst Forest

Land Type	Plan term	Area in Hectares		
		Past Plans		Current
		1992-1997	1997-2002	2002-2007
Non-Forested				
Other Land		9,598	10,052	9,949
Water		55,775	56,752	54,440
Forested				
Non-Productive		155,281	153,464	147,658
Productive				
Protection		48,960	48,507	45,333
Production Forest				
B&S/NSR/Depleted		163,693	201,235	168,547
Working Group				
Pw		55	15	0
Pj		20,797	18,283	19,903
S		552,454	518,877	535,359
B		27,729	26,464	25,902
Oc		37,569	35,139	33,478
Po		151,628	140,013	130,807
Bw (Oh)		12,687	11,205	10,079
Total Production Forest		966,612	951,233	924,075
Total Forested Land		1,170,853	1,153,204	1,117,066

Source: Table 8.2, FMP-1, FMP-2C

* Done according to FMP-1, FMP-2C format from 2002 FMP.

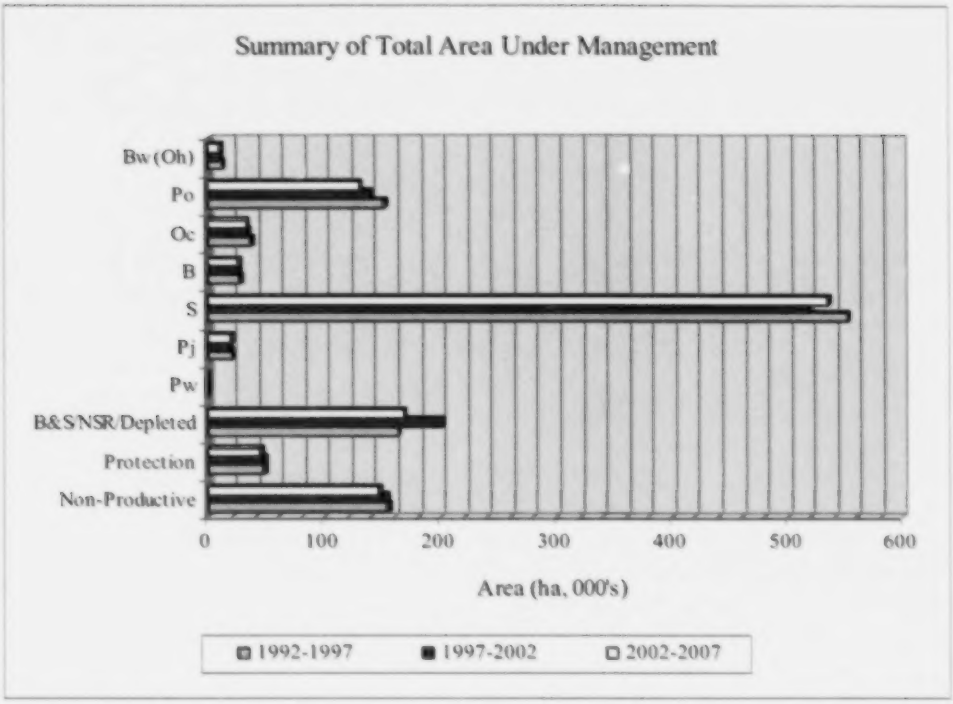

Figure 1: Area of Hearst Forest by Working Group

Description of Forest Units

The forest units used for the 2002 plan were not the same for the previous two plans. The intent of the 2002 FMP required that forest stands be grouped differently than by FRI working groups. Groups of stands done for management are called "Forest Units". The Forest Management Planning Manual 1996 (FMPM) defined Forest Units as:

> "aggregations of stands which normally have similar species composition; develop in a similar manner (both naturally and in response to silvicultural treatments); and are managed under the same silvicultural system. Determination of forest units is based on considerations such as site, economics and product requirements."

This trend of developing forest units and doing away with working group continued into the development of the 2007 FMP. In fact, the direction from guidelines pushed the planning team into developing forest units which are provincially standardized. This is considered a concern as it tends to steer decisions away from local knowledge.

There were 8 different Forest Units identified for the 2002 term as seen in Table 2a. These forest units have been developed through expert opinion of the 2002 Planning Team that relied on local experience with forest and site conditions, previous management efforts on the Forest, and with consultation with MNR Northeast Region staff.

Upland site Forest Units are Mixedwood (M), Hardwood (H), Hardwood Poor (HP) and Jack Pine (Pj). On lowland sites the Forest Units are Spruce Flat (SF), Swamp (Swp) and Spruce 3 (Sp3). The last Forest Unit Spruce Slope (SS) is typically a transition unit at times found on slopes between upland and lowland sites, but can also occupy both the uplands and lowlands and is determining by site class. See Table 2a for a Description of Forest Units and Table 2b and 2c for forest unit descriptions from the preceeding terms. This information can also be found in their respective FMPs.

Summary of Planned and Actual Depletion Volumes

In Table 3, the summary of planned and actual volumes show there has been an increase of 37% in total wood volume planned to be harvested on the Hearst Forest since the preparation of the 1992 FMP. Of this, the planned harvest of balsam fir has increased, while there is a very significant increase in the planned harvest of aspen. Historically the planned aspen harvest was intended to reflect the expected utilization i.e. 24,000 m^3 tree length for Longlac Wood Industries and approximately 17% of the remaining aspen available to be harvested as veneer and utilized by the plywood mill (Columbia Forest Products) in Hearst. This volume was all that was planned to be available. With the arrival of the Grant Forest Product demands of aspen from the Hearst Forest, it was hoped the planned aspen utilization would increase into the future. Due to a lack of business to business agreements this increased volume was only utilized for a short part of the term. Although alternative markets are being explored, this trend is expected to continue until an agreement can be reached.

Another trend which appeared over the 3 terms is the addition of an Oc planned utilization which increased from 0 to 31,384 m^3. This addition was due to the creation of a volume commitments for cedar during the 1997 term. It was expected that cedar would have continued utilization into the 2002 plan. However, limited utilization of Cedar actually occurred and until markets are found non-utilization of cedar is expected to continue into the 2007 term.

The increase in the planned utilization of Bw also due to the introduction of new conditional commitments similar to the commitments for aspen that included the arrival of Grant Forest Products and Algoma Mill Works.

2007 Independent forest Audit

Table 2a - Description of forest Units
Management Unit Name: Hearst Forest

Forest Unit		Forest type	Main Working Group	Site Type	Silvicultural System	FRI Parameters and Criteria	Additional Information
Code	Name						
Pj	jack pine	Conifer	Pj	2,4,5	Clearcut	Wg=Pj and Po=Bw<=0.2 and Ce=La=0	Pj7Sb2Po1 Avg. SC=1.9 Avg. stock=0.9
HP	Hardwood Poor	Hardwood	Po, Bw	6,7,10	Clearcut	Po+Bw>=0.8 and Ce+La=0 and SC<=3	Po8Bw1(SbB)1 Avg. SC=3 Avg. stock=0.9
H	Hardwood	Hardwood	Po, Bw	3,6,7,10	Clearcut	Po+Bw>=0.8 and Ce+La=0 and SC=4	Po7Bw1Sb1(SwB)1 Avg. SC=1.8 Avg. stock=0.9
Sp3	Spruce site class 3	Conifer	Sb, Ce, La	11,12,8,14	Clearcut	Sb+Sw>=0.5 and SC=3 or 4	Sb8Ce1La1 Avg. SC=1.8 Avg. stock=0.9
SS	Spruce Slope	Conifer	Sb, Ce	5,9,8	Clearcut	Sb+Sw>=0.8 and La<=0.1	Sb8Po1(SwB)1 Avg. SC=1.4 Avg stock=0.8
SF	Spruce Flat	Conifer	Sb, La	8,11,12,9	Clearcut	Sb+Sw+Ce+La<=0.3 and Pj+B+Bw+Po=0	Sb9L1 Avg. SC=2 Avg. stock=0.8
Swp	Spruce Swamp	Conifer	Ce, La, Sb	13,8,11,12	Clearcut	Sb+Sw+Ce+La<=0.6 and Pj+Bw+Po=1	Ce4Sb3La1B1 (SwP0)1 Avg. SC=2.1 Avg. stock=0.7
M	Mixedwood	Mixed Hardwood and Conifer	Po, B, Bw, S	6,7,10	Clearcut	Sb+Sw or Po<=0.7 and Pj+B+Bw>=0.3 and (Ce<=0.1 and La=0) or (Bw>=0.5 and Ce<=0.5)	Po4Sb3B2Bw1 Avg. SC=1.7 Avg. stock=0.7

Source: FMP-8, 2002

1997 to 2002 Term

Table 2b - Description of forest Units
Management Unit Name: Hearst Forest

Forest Unit		Forest type	Main Working Group	Site Type	Silvicultural System	FRI Parameters and Criteria	Additional Information
Code	Name						
SX1	Spruce SC X and 1	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=X or 1	none
S2	Spruce SC 2	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=2	none
S3	Spruce SC 3	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=3	none
Pj all	Jack pine	Conifer	Jack pine	n/a	Clearcut	Wg=Pj	none
Bf all	Balsam fir	Conifer	Balsam fir	n/a	Clearcut	Wg=B	none
Oc all	Other conifer	Conifer	Cedar and Larch	n/a	Clearcut	Wg=Ce or La	none
PoX12	Poplar SC X, 1 and 2	Hardwood	Poplar	n/a	Clearcut	Wg= Po SC=X,1or2	none
Po3	Poplar SC 3	Hardwood	Poplar	n/a	Clearcut	Wg=Po SC=3	none
Oh all	Other hardwoods	Hardwood	White birch	n/a	Clearcut	Wg=Bw	none

Source: 1997 FMP

1992 to 1997 Term

Table 2c - Description of forest Units
Management Unit Name: Hearst Forest

Forest Unit		Forest type	Main Working Group	Site Type	Silvicultural System	FRI Parameters and Criteria	Additional Information
Code	Name						
SX1	Spruce SC X and 1	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=X or 1	none
S2	Spruce SC 2	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=2	none
S3	Spruce SC 3	Conifer	Spruce	n/a	Clearcut	Wg=Sp SC=3	none
Pj all	Jack pine	Conifer	Jack pine	n/a	Clearcut	Wg=Pj	none
Bf all	Balsam fir	Conifer	Balsam fir	n/a	Clearcut	Wg=B	none
Oc all	Othe conifer	Conifer	Cedar and Larch	n/a	Clearcut	Wg=Ce or La	none
PoX12	Poplar SC X, 1 and 2	Hardwood	Poplar	n/a	Clearcut	Wg= Po SC=X,1or2	none
Po3	Poplar SC 3	Hardwood	Poplar	n/a	Clearcut	Wg=Po SC=3	none
Oh all	Other hardwoods	Hardwood	White birch	n/a	Clearcut	Wg=Bw	none

Source 1992 FMP

As seen in Figure 2, actual total harvest volumes exceeded the planned harvest volumes in the 1992 term, which reflects the conservative volume estimation process that has been used in the planning of forest operations, but also increased utilization of aspen from much forest. The operators harvested 5% more volumes than planned in the 1992 term. The actual level of aspen harvest contributed to the increased actual volume. While harvest volumes were achieved they would have been exceeded had all the area planned for depletion been harvested. Some area was not harvested in the 1992 term due to a dispute between the forest industry and Constance Lake First Nations (CLFN) regarding the harvest on First Nations traplines. Lecours Lumber did not harvest an approximate 50,000 m^3 during the 1992 term from these areas in dispute. Also in Figure 2, the 1997 term shows the actual volume was 96% of the planned.

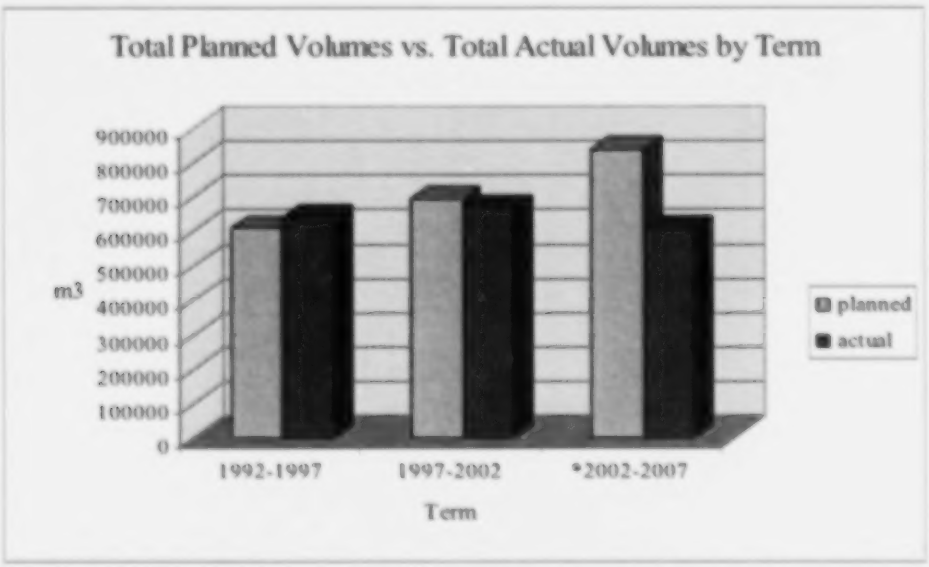

Figure 2: Total Planned Volumes versus Total Actual Volumes m3
(* 2006-2007 year not included)

To analyse this further in Table 3, and although the B, Sp, and Pj volumes (SPF) added together reach 99% (582,223 m^3 actual of the planned 586,503m^3) of the achieved planned, the result is due to a decrease in of hardwood utilization. In particular, Po at 82% of the planned and an almost non-utilization of Bw.

In the 2002 term, volume is accumlated for the first 4 years due to the timing of this report. As seen in Figure 2 after 4 years, the total actual volume sits at 72% of the planned. It is expected that there will be a slight shortfall in total actual volume, because hardwood utilization was lower than expected. For conifer, the 4 year actual volume is 73% and intitial indications reports that conifer volumes will reach a least the planned levels by term end even though there was a 6% shortfall predicted in the 2002 FMP. Hardwood utilization sits at 20% after 4 years which is significantly low for 4 main reasons listed below. These reasons are expected to continue into the 2007 planning term.

- There was a trend appearing where licensed operators are recovering less volume of all species than expected from their allocation blocks on upland sites. This trend was a result of an aging inventory for the Hearst Forest;
- There is an increasing trend of companies bypassing areas that have small concentrations of aspen e.g. 1000 m^3 or less The small concentrations of poplar left in the bypass areas affect the cost of harvesting poplar as operators need to move machinery from site to site more frequently. Poplar operators are looking for higher volumes to make harvesting profitable or simply less costly.
- Markets for OSB have subsided and poplar is being left in the bush, and
- Both Grant Forest Products and Longlac Wood industries are actively avoiding long-hauls from the Hearst Forest to their current mill locations. Grant would have to haul from the Hearst Forest to Timmins. Longlac is hauling from the west side of the Forest only.

Some other reasons for differences of planned versus actual volumes and their trends which are also expected to continue into the 2007 planning term are listed below:

- The actual harvest utilization of Oc increased slightly due to two small specialty sawmill operators (Cyprien Lachance and Guy Leduc);
- The significant increase in B in the 2002 term is evident as a result of upgrades to the Tembec mill;
- The Oh utilization in the first 1992 and 1997 terms included mainly Bw incidental. The 2002 term saw this corrected and Oh now only consists of black ash, and
- The decrease in actual Bw utilization is because the Hearst Forest lost its veneer operator (lamontagne logging). No other Bw operators exist excluding Columbia who utilizes very little Bw veneer.

2007 Independent forest Audit

Table 3 - Summary of planned and actual harvest volumes
Management Unit Name: Hearst Forest

Average planned annual harvest volumes
Volumes are annualized for the indicated 5 year term

Species	Volume in m3		
	Past plans		Current
	1992-1997	1997-2002	2002-2007
Sp	508,532	492,244	484,839
B	513	411	21,350
Pj	61,162	93,848	58,881
Po	33,437	105,867	222,446
Bw	6,260	3,864	19,300
Oc	0	0	31,384
Oh	0	0	0
Total planned volumes	**609,904**	**696,234**	**838,200**

Average actual annual harvest volumes
Volumes are annualized for the indicated 5 year term

Species	Volume in m3		
	Past plans		Current
	1992-1997	1997-2002	*2002-2007
Sp	462,689	494,295	453,384
B	722	2,995	10,383
Pj	96,975	84,933	81,671
Po	79,293	86,358	60,391
Bw	783	101	379
Oc	19	496	716
Oh	913	33	2
Total planned volumes	**641,394**	**669,211**	**606,925**

Source: Table 3.1 and RPFO-4, FMP-23, AR-4

* The final year of the the 2002-2007 term has not be reported on.
As indicated in Appendix C page C-2, numbers are not estimated.
These are 4 year numbers only.

Some challenges going into the 2007 planning term around maintaining wood supply as discussed in the 1997 RPFO.

As mentioned briefly, prior to beginning the forest management planning process on the Hearst Forest, the Ontario Government completed the Lands For Life process and expanded the area of potential provincial parks and conservation reserves substantially with the Ontario Living Legacy initiative. This decreased the Crown Managed area of the Hearst Forest by approximately 52,310 ha. The 52,310 ha are considered as park candidates and no longer protected by the Crown Forest Sustainability Act (1994).

Simultaneously, the planning process requires the Forest Management Guidelines for the Provision of Marten Habitat be applied. The Guidelines require 10 to 20 % of area capable of being marten habitat to be maintained in suitable condition in concentrated configurations at any given time. The concentrations, known as marten core, are deferred from forest management for up to 60 years. The application of the Guidelines makes another 150,000 ha unavailable.

With the two new constraints for the 2002 term, the economic challenge is to meet the industrial demand for forest products, which remains unchanged from the previous term, from approximately 20% less forest. To meet the challenge, 3 initiatives were taken:

- The results of an extensive FTG survey, over 78,000 ha, were included into the inventory;
- All plantations on the Forest were identified and compiled into digital information for use in GIS spatial calculations and linking to intensive yield curves, and
- Minimum operable ages for all forest units were reviewed and in some cases were lowered.

The effect on wood supply projections of the 3 initiatives was dramatic. Instead of facing an assumed wood supply reduction, the result was a very small increase of 2 % for spruce-pine-fir and a large increase, 25 %, for hardwood. However, when it appeared the volume demand could not only be met but slightly exceeded, there was pressure to increase the marten core areas by whatever area equated to the additional volume.

After careful consideration, the 2002 Planning Team considered the increase in marten core above 12.7 % would be insignificant. The potential increase to harvest volumes was endorsed. This chalenge continued into the development of the 2007 FMP with yet the further potential reduction to wood supply with the introduction to consider management for Woodland Caribou. See Regional Letter in 2007 FMP.

Summary of Planned and Actual Depletion Area

In comparing the planned area scheduled for depletion with the actual for all terms in Table 4, the 1992 term showed actual harvest and bypass exceeded the planned depletion area by 11%. However, the harvest area not including bypass is only 87% (41,813 ha actual/47,782 ha planned) of the planned. Although the area was not achieved, volume target were as discussed in the previous section. The actual depletion area varied from a

low of 68% harvest in the other hardwood (Oh) forest unit to a high of 189% harvest in the spruce site class 3 (S3) forest unit. The 68% of Oh was explained in the previous section while the 189% of S3 can be explained as it presents a false significance. The planned area for S3 was only 495 ha while the actual area was 938 ha. The appearance that 189% of the planned harvest area of the S3 Forest Unit was depleted, is the result of the area of forest left behind following harvest operations due to merchantability being considered depleted as unplanned bypass. Although no harvesting has occurred there, it is simply an issue of how this area is tracked.

The 1992 term also saw natural depletions which included both fire and blowdown. In the 1997 term, the natural depletions caused by fire only were relatively insignificant.

For the 1997 term the above trend is noticed again where bypass area was significantly high. 80% of the actual area depleted compared to the planned depletion area (43,135 ha (RPFO-1)/53670 ha (FMP 1997). Table 4, the actual annual harvest area which includes bypass was approximately 100% of the planned area. This ranged by working group from a low of 33% in the balsam fir forest unit to a high of 114% in the S3 forest unit. The site class 4 non-forested (S4,Nfor) and poplar site class 4 (Po4) forest unit has no planned area, and the actual area of depletion for these units consists mainly of bypass or incidental due to FRI discrepacies.

In the 1992 and 1997 terms bypass was labelled as a reserve on the planning maps. In the 2002 term, only the reserves that were indentified by the FMP planning team biologist appeared on the planning maps. As a result, any interpreted bypass was not labeled for the 2002 term and it was presumed and dictated that the operators would harvest as much of the merchanble timber as possible in harvest blocks leaving behind non merchantable timber or as it was labelled "bypass".

2007 Independent forest Audit

Table 4 - Summary of Planned and Actual Depletion Area
Management Unit Name: Hearst Forest

Area is annualized for the indicated 5 year term

Planned Annual Harvest Area				Actual Depletion Area per year					
	Area in Hectares (ha)			Area in Hectares (ha)					
	Past Plans		Current	Past Plans				Current	
Plan Term	1992-1997	1997-2002	2002-2007	1992-1997		1997-2002		2002-2007	
				Harvest/bypass	Natural	Harvest/bypass	Natural	**Harvest	Natural
Working Group									
SX1	2,515	2,978	n/a	2,613	2,585	2,539	12	n/a	n/a
S2	2,903	3,157	n/a	3,472	848	2,837	30	n/a	n/a
S3	495	894	n/a	938	82	1,016	0	n/a	n/a
***S4/Nfor/Po4**	0	0	n/a	0	0	788	1	n/a	n/a
B	371	215	n/a	308	4	71	1	n/a	n/a
Pj	483	593	n/a	598	69	586	0	n/a	n/a
Oc	440	517	n/a	635	107	583	1	n/a	n/a
PoX12	1,654	1,479	n/a	1,523	105	1,417	0	n/a	n/a
Po3	333	710	n/a	292	102	718	0	n/a	n/a
Oh	362	192	n/a	247	158	217	0	n/a	n/a
!Forest Unit									
H	n/a	n/a	450	n/a	n/a	n/a	n/a	450	^n/a
HP	n/a	n/a	211	n/a	n/a	n/a	n/a	135	^n/a
M	n/a	n/a	1,351	n/a	n/a	n/a	n/a	1,376	^n/a
Pj	n/a	n/a	525	n/a	n/a	n/a	n/a	576	^n/a
SF	n/a	n/a	1,620	n/a	n/a	n/a	n/a	1,530	^n/a
Sp3	n/a	n/a	1,338	n/a	n/a	n/a	n/a	1,240	^n/a
SS	n/a	n/a	1,752	n/a	n/a	n/a	n/a	1,749	^n/a
Swp	n/a	n/a	148	n/a	n/a	n/a	n/a	126	^n/a
Nprod	n/a	n/a	0	n/a	n/a	n/a	n/a	221	^n/a
ProtF	n/a	n/a	0	n/a	n/a	n/a	n/a	31	^n/a
Total Area	**9,556**	**10,735**	**7,395**	**10,626**	**4,060**	**10,772**	**45**	**7,434**	**49**

Source: TMPM 4.15, 4.1, FMPM RPFO-2, FMP-18, AR-1 2005-2006

Note: Reserves are not included in this table

* Incidental area misrepreented in the FRI

** Year 2006 to 2007 are not to be estimated and therefore not included. Annual average drawn from the first 4 years of the term.

^ Small areas were provided in point form by MNR on an annual basis and was not broken down by forest unit.

! 2002 FMP no longer uses working group, but rather forest unit.

However, the significant trend of [1]unplanned bypass really involves the poplar operators who are experiencing the same problem as discussed in the previous section. This trend was expected to continue into the 2006 to 2007 year. A survey of remaining bypass areas being left in harvest blocks was conducted by the SFL in 2002 to 2004. The results of which should help reveal if merchantable timber is-being left incorrectly as bypass. Final results of this survey will be included in the 10 year 2006/2007 AR which has not been prepared at this time. Preliminary results showed for the most part, no merchantable timber was being left behind.

This trend should be eliminated as the 2007 planning process for the new operating blocks has included photo interpretation that places non-merchantable timber into floating reserves. These floating reserves are no longer labeled as bypass.

For the period of 2002-2006 the annual harvest area is indicated by forest units that were newly developed for the 2002 plan as a result of pressures from the MNR Region to standardize forest units accross Ontario. For this reason, graphical comparisions in Figure 3 are done using the totals for all the terms and not split by individual forest units.

Annual averages are calculated by dividing total planned harvest area and the total actual harvest area to date by 5 with the exception of the 2002 term were the average is calculated by dividing the total actual by 4. The total actual harvest area for the 4 years in the 2002 term is sitting at 80% of the the total planned which suggests that things are on target for the term. See Figure 3.

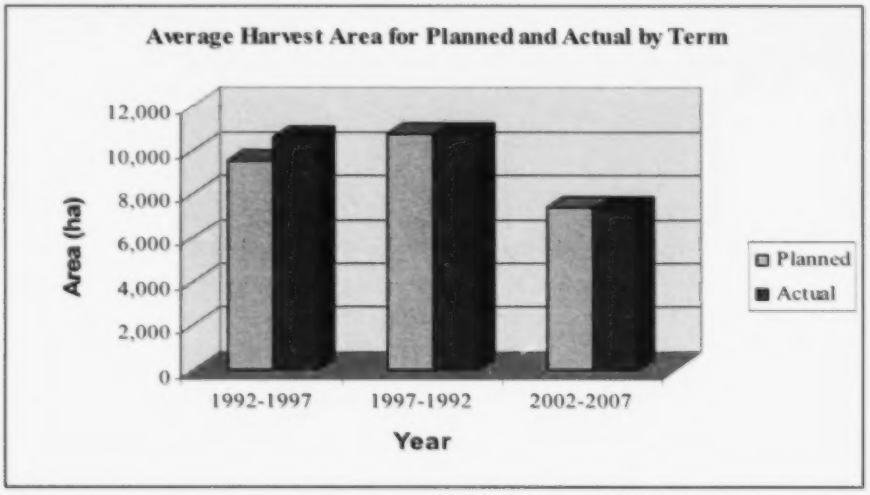

Figure 3: Average Actual Area for Planned and Actual by Term

[1] Unplanned bypass consists of the following types: **Unmarketable bypass types** were areas left unharvested because there were no markets for the species on site. This included sites with high concentrations of Ce, Pb and Ta species. **Unmerchantable bypass types** were areas left unharvested because tree species on site were too small and not of merchantable size. This accounted for much of the unplanned bypass. **Inaccessible or inoperable bypass types** were areas unharvested because are could not be accessed due to unfavourable winter conditions or unexpected natural occurrences i.e. flooding. This did not occur very much over the term and consisted of very small portions of area usually from localized flooding. **Uneconomical bypass types** were areas unharvested because after conifer operators finish harvesting, small pockets of aspen and/or balsam poplar remained. Small pockets of aspen made it uneconomical for polar operators to chase particularly with pockets of less than 1000 m^3 available.

Summary of Managed Productive Forest by Forest Unit

The summary of managed productive forest by forest unit showed that the forest was generally younger when the new inventory was produced and used in the 1992 TMP compared to the 1987 TMP. In Table 5, a slightly older forest is evident in the 1997 and 2002 terms. This trend is expected to continue into the 2007 term. With the lack of an effective FTG program early on, B&S areas were not being put back into their respective age classes unitl midway through the 1997 term. The result shows a higher proportion of the forest being older. With a new inventory expected sometime in 2009 a more true picture of the forest will be presented.

Over the terms examined there has been a decline in the area covered by all working groups with an assigned age class i.e. not B & S, except for the poplar working group. This is to be expected as there was no active FTG program ongoing prior to the production of the 1997 term. However, the FTG program was reestablished in 1997 and has been maintained into the 2002 term as mentioned above.

The inventory produced in 1992 showed much of the B & S area was assigned either to the spruce and poplar working group with small amounts in remaining groups. The area of the managed forest is predominantly spruce, jack pine, balsam fir, poplar, and other hardwood (including white birch) which have remained relatively constant at 72%, 3%, 3%, 17%, and 2% respectively over the past three planning terms. Other Conifer showed a minor increase from 4% to 5%. See Table 5.

The decline in the area by forest unit with age class is primarily due to the withdrawal of the OLL lands during the 1997 term. Also, ongoing harvesting operations would be a factor in the reduction of this area as it is subsequently placed into B & S.

2007 Independent forest Audit

Table 5 - Summary of Managed Productive Forest by Forest by Forest Unit
Management Unit Name: Hearst Forest

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
Spruce	Protection	41,777	41,433	38,477
	B&S	134,768	157,301	123,077
	1 to 20	10,518	66	41,982
	21 to 40	34,555	26,049	41,059
	41 to 60	35,997	24,234	24,637
	61 to 80	47,198	54,349	48,662
	81 to 100	175,545	129,154	127,478
	101 to 120	69,339	59,805	49,854
	121 and up	199,302	222,909	201,341
	Spruce subtotal	748,999	715,300	696,567

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
Pj	Protection	12	12	12
	B&S	5,087	5,747	4,340
	1 to 20	1,462	76	3,871
	21 to 40	130	990	2,373
	41 to 60	2,925	153	98
	61 to 80	9,461	3,464	2,133
	81 to 100	4,461	9,233	8,499
	101 to 120	2,314	2,746	1,388
	121 and up	187	1,489	1,541
	Pj subtotal	26,039	23,910	24,255

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
B	Protection	23	18	0
	B&S	2,467	2,220	1,849
	1 to 20	443	0	51
	21 to 40	10,899	7,947	7,696
	41 to 60	11,941	11,801	11,617
	61 to 80	3,260	5,046	4,863
	81 to 100	799	868	1,066
	101 to 120	365	444	266
	121 and up	22	283	343
	B subtotal	30,219	28,627	27,751

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
*Oc	Protection	6,204	6,156	5,999
	B&S	1,053	2,445	4,605
	1 to 20	798	0	646
	21 to 40	641	105	146
	41 to 60	1,865	1,289	975
	61 to 80	1,784	1,979	1,935
	81 to 100	3,124	1,918	2,310
	101 to 120	5,010	2,478	1,987
	121 and up	24,367	27,235	25,373
	Oc subtotal	44,846	43,605	43,976

* Includes Ce, La, Pw, Oc from 2002 FMP

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
Po	Protection	835	779	720
	B&S	18,103	33,899	30,784
	1 to 20	4,520	123	6,345
	21 to 40	22,755	14,852	15,028
	41 to 60	29,142	29,055	28,443
	61 to 80	29,854	34,127	30,512
	81 to 100	48,153	36,890	33,517
	101 to 120	14,148	18,964	12,526
	121 and up	3,056	4,878	4,436
	Po subtotal	170,566	173,567	162,311

Forest Unit	Age Class	1992-1997 (ha)	1997-2002 (ha)	2002-2007 (ha)
**Oh	Protection	109	109	95
	B&S	2,215	3,637	4,344
	1 to 20	109	0	1,089
	21 to 40	539	487	467
	41 to 60	3,027	2,608	2,452
	61 to 80	2,839	2,734	2,211
	81 to 100	3,949	2,738	2,347
	101 to 120	1,910	2,007	1,115
	121 and up	314	412	398
	Oh subtotal	15,011	14,732	14,518
	Total	**1,035,680**	**999,741**	**969,378**

Source: TMPM 4.8.2 and TMPM Table 4.9, FMP-2C

Note: Production forest was split in 20 year age classes in the FMP 2002

** Includes Ab, Oh, Bw from 2002 FMP

Note: In the 2002 FMP Bw was separated but included as Oh here.

Summary of Renewal, Tending and Protection Operations – Planned vs. Actual

Regeneration and silvicultural achievements have been summarized in Table 6, showing planned versus actual. Natural regeneration accomplishments have increased in the 1997 term from the 1992 term as the companies became more adept at carrying them out in the field. The 2002 term totals are for the 4 years only and all treatments appear to be on target. Although the actual does not meet the planned in the 1992 term, it must be recognized that the actual harvest area also did not meet the planned harvest area. The actual accomplishment of CLAAG regeneration for the 1997 term is 62% of the planned level, while GST is 59%, and poplar natural accomplishments were 73% of the planned level.

The amount of CLAAG and GST that had been carried out in the 1992 and 1997 terms were lower than the planned level because a percentage of the low ground sites that were initially identified for harvest and natural regeneration treatment i.e. CLAAG or GST, remain standing as bypass due to merchantability of the unmerchantable bypass sites that remained were forecasted to have CLAAG or GST prescriptions. These sites being predominantly lowland sites with a higher proportion of non merchantable timber. It is uncertain as to whehter this trend will occurred in the 2002 term or into the 2007 term. The reason is because aid in accomplishing natural treatments in the field has been increased with the change to a more modern mechanized harvesting system particluar for CLAAG prescriptions. Prior to a modernized harvesting system, the use of the cut and skid harvesting was the predominant method. Although companies may have tried to carry out this CLAAG prescriptions, there was less control in the direction of tree felling and certainly no control over skidding when using cable skidders. At times no advanced growth would be left on the the cutovers, and the companies would not be credited with a CLAAG prescription.

Artificial regeneration efforts were 122% of the planned in the 1992 term, partially as a result of a prescribed burn area that exceeded expectations in 1995 and subsequently regenerated in 1996. Since then, the the Forest Renewal Trust program levelled off the artificial regeneration program at 6.5 million trees on an annual basis. Final numbers for the regeneration program for the 2002 term have not been generated although the 4 year trend shows that the actual planting level is on track to meet the planned level. A portion of the artificial regeneration was carried out using the FFT program which is not included, and not measured against the planned levels.

The site preparation activities on the forest over the past 3 planning terms have been inconsistent while artificial regeneration activities have stayed constant. Particularly in the 2002 term where more reliance had been placed on hand scalp systems used by tree planters on clean sites. The 2002 term should see site preparation (upon completetion of the 5th year) at a level significantly lower due to the pressures to reduce management costs particularly in the later half of the term. Furthermore, regeneration of older cutovers have been completed allowing the SFL to return focus on regenerating fresh cutovers sooner.

2002 Independent forest Audit

Table 6 - Summary of Report of Renewal, Tending and Protection Operation
Management Unit Name: Hearst Forest

			Area by Future Forest Unit (ha)					
			1992-1997		1997-2002		2002-2007	
			Planned	Actual	Planned	Actual	Planned	^Actual
1. Renewal								
Regeneration	Uneven-Aged Management							
		Selection Cut	0	0	0	0	0	0
		Total Uneven-Aged Management	0	0	0	0	0	0
	Even-Aged Management							
		Natural Regeneration						
		CLAAG	13,432	9,166	23,550	14,508	20,744	13,993
		GST	6,025	5,238	10,366	6,150	3,394	3,403
		Block Cut	215	130	0	0	0	0
		Poplar Natural	3,697	2,877	7,452	5,403	1,921	1,971
		Subtotal Natural	23,369	17,411	41,368	26,061	26,059	19,367
		Artificial Regeneration						
		Planting - Renewal Trust Program	14,386	17,561	16,315	16,428	14,772	12,655
		*Forestry Futures Trust Program (FFT) - Planting	0	0	0	0	0	2,220
		Seeding	0	0	0	0	0	0
		Scarification	0	0	0	0	0	0
		Subtotal Artificial	14,386	17,561	16,315	16,428	14,772	12,655
		Total Even-Aged Management	37,755	34,972	57,683	42,489	40,831	32,022
		Total Regeneration	37,755	34,972	57,683	42,489	40,831	32,022
Site Preparation								
	Mechanical - Renewal Trust Program		9,800	5,820	6,530	12,602	8,170	3,689
	*Mechanical - Forestry Futures Trust (FFT)		0	0	0	0	0	2,490
	**Slash piling		0	0	0	0	0	16,338
	Chemical - Aerial		5,700	5,068	5,710	2,114	757	1,825
	Prescribed Burn		3,100	2,545	3,260	0	5,486	0
	**Slash pile burning		0	0	0	833	20,000	13,451
		Total Site Preparation	18,600	13,433	15,500	15,549	14,413	35,303
2. Tending								
	Cleaning	Manual	0	500	0	0	0	0
		Chemical Ground	0	0	0	378	1,928	195
		Aerial - Renewal Trust Program	19,450	17,975	18,500	11,028	10,650	9,628
		*Aerial - Forestry Futures Trust (FFT)	0	0	0	0	0	836
		Mechanical	0	0	0	0	0	0
		Prescribed Burn	0	0	0	0	0	0
	Spacing, precommercial thinning, improvement cutting							
		Commercial thinning	0	0	0	0	0	147
	*Pre-commercial thinning - Forestry Futures Trust (FFT)		0	0	0	0	0	104
	Cultivation		0	0	0	0	0	0
		Total Tending	19,450	18,475	18,500	11,406	12,578	9,970
3. Protection								
	Accelerated harvest			0		0		0
	salvage			0		0		189
	manual protection			0		0		0
	ground insecticide			0		0		0
	aerial insecticide			0		0		0
		Total Protection		0		0		189

Source: TMPM table 4.19, FMP-25b (2002 to 2007), AR-7 (2005-2006)

* FFT not applicable against the Forecasts in the FMP, therefore no included in total.

** Both slash piling and burning are calculationg by using gros cutover area. No forecasts were made in FMP-25b, but FMP text addresses 20,000 ha of slash pile burning.

^ 4 year numbers only (2002 to 2006) no estimates used for the 2006 to 2007 year.

Many of the sites planned for mechanical site preparation where diverted to aerial chemical applications which has resulted in the increase of chemical site prepartation compared to the planned level. A portion of the mechanical site preparation during the 2002 term was also done with the help of funding from the FFT Program.

In the 1997 term mechanical site preparation was 193% of the planned level while chemical site preparation is at 37% of the planned. The reason for this difference is the emphasis that had been placed on regenerating older cutover areas (area cut in the 1987 and 1992 terms) which limits the effectiveness chemical site preparation as well as eliminating the opportunities for planting these areas without the help of mechanical site preparation as these ares are overgrown with brush species. As well, the shift in a provincial government direction to recover full cost for prescribed burns failed, eliminating its effective use even though efforts still continued in an attempt to find ways to allow prescribed burns for future plans.

The amount of chemical tending was 92% of the planned in the 1992 term. Chemical tending needs are determined on a case by case, year by year basis to ensure that no spraying is carried out on sites that do not require protection. The amount tended in 1997 was less than the previous term since the 1987 term exhibited large areas declared Not Successfully Regenerated (NSR) from prior to the signing of the FMA. The amount of aerial chemical tending completed in the 1997 term is 60% of the planned level. In the 2002 term the 5th year numbers are not finalized yet, but the 4 year actual sits at 90% of the planned. The Forestry Futures Trust was also used to chemically tend areas that were artificially regenerated using FFT funding.

Ground spray was used in areas that required spraying in sensitive areas and after 4 years the actual is 10% of the planned. Ground spray is a more expensive alternative to the aerial applications. Similar to aerial aplications, ground spray is carried out on a case by case basis to eliminate unnecessary costs.

Also in the 2002 term, some improvement cuttings were done in the forms of commercial thinnng and precommercial thinning. Pre-commercial thinning was done using the aid of Futures Forest Trust Fund.

The commercial thinning operation which occurred in years 2 and 3 only of the 2002 term was considered a tending silvicultural treatment[1]. Low thinning accelerates stand development[2] and may result in greater total fibre productivity over the life of a stand[3]. When a stand is thinned from below, or "low thinning", it's condition is affected normally in a beneficial manner:

- Density is reduced by approximately 1/3 to increase individual tree growth;
- Species composition may be altered minimally to favour desired species, or not at all;
- Average stand diameter should be increased, and
- A stand still occupies the site after treatment so renewal treatments are not required.

When thinning occurs in fully stocked stand conditions managed under the clearcut silvicultural system, these activities do not constitute a harvest even though the FMPM 1996 requires that thinned areas be reported as a such.

These trends discussed for the 1997 and 2002 terms are expected to continue into the 2007 term.

Harvest Area Successfully Regenerated – Summary of All Forest Units

The total area harvested for Table 7 is selected by using a standard delay of 5 years for poplar natural, 5 years for planted jack pine, 7 years for planted spruce, and 15 years for natural regeneration for spruce i.e. CLAAG and GST. This addresses the lag time that occurs prior to the point when regeneration is assessed for success. The 5 years preceeding this date is the total area harvested i.e. 2007 subtract 10 years equals 1997 subtract 5 years equals 1992. From the harvested area during the 1992 term, 9,714 ha have been assessed in FTG surveys. This represents 23% of the area harvested. Of this 9,603 ha (98.9%) of the area assessed has been declared FTG, see Table 7 and Figure 4 for a comparative illustration.

In Figure 4, the reason for the low amount of FTG surveyed area on natural regeneration sites from the 1992 harvested areas is due to FTG surveyed area on artificial sites only which are surveyed after 5-7 years. Natural regeneration sites are anticipated to achieve FTG status in 15 years so surveys have not been done yet. Surveys that were done on naturally regenerated sites during the 1997 term showed regeneration was present, but the sites would require herbicide applications to be declared FTG. Spraying is required before FTG surveys can be made to allow for effective release. These remaining unsurveyed areas for FTG are planned for assesment in the 2007 planning term.

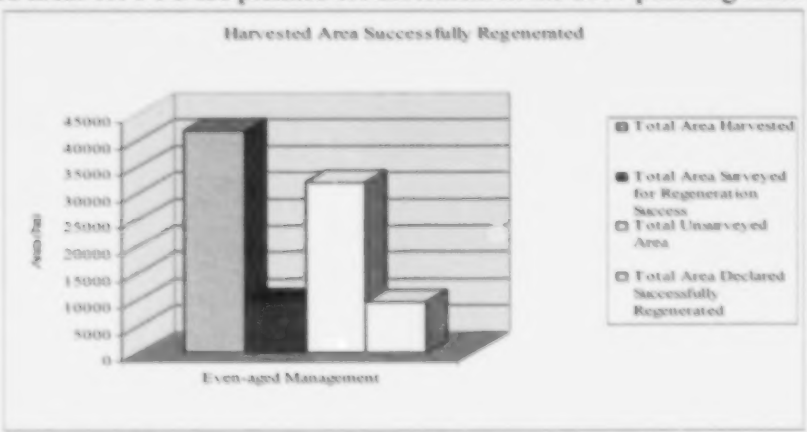

Figure 4: Total area Harvested versus surveyed and for regeneration success – uneven-aged management only.

[1] *OMNR, 1996. Forest Management Planning Manual for Ontario's Crown Forests. Ontario Ministry of Natural Resources. Queen's Printer for Ontario. Toronto, Ontario. 452pp. GL-37*

[2] *Burton, P.J. et al (Editors), 2003. Towards Sustainable Management of the Boreal Forest. NRC Research Press, Ottawa, Ontario. 1039pp.*

[3] Nyland, R.D., 1996. Silviculture: Concepts and Applications. McGraw-Hill, New York, New York. 633pp 20-25.

Table 7 - Harvested Area Successfully Regenerated - Summary of all Forest Units
Management Unit Name: Hearst Forest

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	**Uneven-aged Management**
Total Area Harvested (1992 to 1997)	41,813	0
Total Area Surveyed for Regeneration Success	9,714	0
Total Unsurveyed Area	32,099	0
Total Area Declared Successfully Regenerated	9,603	0
Total Area Surveyed not successfully regenerated		
NSR	32,210	0
B & S	0	0
Not Available for Regeneration (e.g. Roads/Landing etc.)	1,673	0
Other	0	0
Percent of Area Surveyed Declared Successfully Regenerated	98.9%	0

Source: RPFO-1 (1992-1997), GIS

Discussion of FMP objectives from the 1992 FMP as they relate to Table 7

There were 5 broad objectives developed in section 5.3 of the 1992 FMP. These objectives do not apply specifically to information found in Table 7 of this trends and analysis report as this table deals with FTG. As found in table 7, 98.9% of the area surveyed was declared successfully FTG would be considered meeting the objective if existed in the 1992 FMP.

The harvest objective could also relate as 41,813 ha of area or 87% were harvested of the planned 47,783 ha. This is inconclusive information as the area was not achieved, but the volume targets were. See discussion around Table 3 and Table 4. No other objectives would apply from the 1992 FMP.

Forest Unit Conversions

In Table 7, FTG area is not displayed by forest unit, but rather all forest units combined. It is therefore not possible to show how forest units or species conversions which have occurred as a result of practices on the Hearst Forest.

As discussed in the Hearst Forest 2002 FMP, "following silvicultural treatment, as with natural disturbances, some stands will regenerate to different species mixes and/or proportions than existed before harvesting. If the change is substantial enough, the stand can convert Forest Units. In general, conversions represent a small part of silvicultural outcomes and are acceptable as long as their cumulative effect does not jeopardize achieving management strategies and objectives, and ultimately the DFFC".

"The conversions anticipated to result from silvicultural treatments during this Plan represent a small amount of area and are accommodated within the DFFC. Conversions are described in Table FMP-10" of the 2002 FMP.

Appendix B: Audit Team Members and Qualifications

The IFAPP identified the following qualifications for Audit Teams:

Lead Auditor:

- must have a minimum of 7 years recent and relevant experience in forest management and forest operations, in similar types of forests, preferably in Ontario;
- must be trained in auditing procedures and have current forest auditing experience; and
- ideally is certified as an environmental auditor.

Audit Team:

- minimum of two people with experience in forest management planning and forest operations;
- a minimum of one wildlife biologist and/or ecologist;
- minimum of one person with experience in assessing: socioeconomic profiles and the social and economic impacts which may result from forest management planning decisions; public consultation processes in the context of forest management; and First Nations involvement in forest management planning;
- for each individual, minimum of 7 years recent and relevant experience in forest management and forest operations in similar forest types, preferably in Ontario;
- ideally, some Audit Team members will be certified as environmental auditors;
- at least one member of the Audit Team must have demonstrated experience and/or training in the requirements of the FMPM including the strategic direction and determination of sustainability component;
- at least one member of the Audit team shall be a Registered Professional Forester; and
- team size is a minimum of three.

The team for this audit, described in Table B - 1 below, included five people in the following positions: Lead Auditor and Harvesting and Modeling Forester, Wildlife and Roads Expert, Silviculturalist, Planning Auditor, and Consultation Auditor.

Table B - 1. The Roles, Responsibilities, and Qualifications of the Audit Team

Name/Company	Role	Responsibilities	Credentials
Mr. Chris Wedeles ArborVitae Environmental Services Ltd.	Lead auditor, Wildlife/Ecology Auditor	• overall audit coordination; • oversee activities of other team members; • liaise with Company & MNR; • review and inspect Areas of Concern Documentation and Practices; • review and inspect aspects of forest management related to environmental practices and wildlife management integration; • review and inspect access and water crossings	B.Sc., M.Sc. (Wildlife Biology); 20 years wildlife and forest ecology and experience in Ontario; completed almost 30 previous independent forest audits; certified as an auditor by the Quality Management Institute.
Dr. Jeremy Williams, RPF ArborVitae Environmental Services Ltd.	Lead Auditor, Harvesting and Modeling Forester	• review and inspect harvesting records and practices; • review aspects of forest management related to forest economics and social impacts • reviews FMP modeling inputs and activities	B.Sc.F., Ph.D. (Forest Economics); 16 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in 18 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Robert Arnup	Boreal and Mixed Silviculturist	• review and inspect silvicultural practices and related documentation; • review and inspects selected environmental aspects of forest management	M.Sc. Senior forest ecologist with 25 years' experience in silviculture, ecosystem-based forest management applications and environmental consulting in boreal Canada and elsewhere
Mr. Mark Fleming, RPF Fleming Forestry Consultants	Planning Auditor	• review FMP and related documents to ensure compliance with FMPM and other regulations; • review plan development process for conformity with FMPM	Hon. B.Sc.F., R.P.F. 20 years experience in forest management in Ontario as a consultant, working as a regional MNR planning specialist, and operations forester with industry; Trained lead auditor for ISO 14001 and Smartwood/FSC .
Mr. J.P. Gladu RPF Aboriginal Strategy Group	Consultation Auditor	• review documentation related to forest management consultation processes • Consult with stakeholders, LCC and First Nations regarding forest management issues	B.Sc. (Native American Forestry). Mr. Gladu is one of few Aboriginal Foresters in Canada. His experience has focused on Aboriginal issues related to economic development, forest based policy, certification, and criteria and indicator development.

Appendix C: Independent Forest Audit Guiding Principles

The IFAPP identifies several components of the audit process. The audit protocol constitutes the main framework for the audit. There are eight principles within the audit protocol (Table C - 1). Each principle contains a series of criteria which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees' compliance and effectiveness.

Table C - 1. The Eight Principles Underlying the Audit Protocol, as noted in the IFAPP.

1. Commitment
Commitment is reflected in vision, mission and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

2. Public Participation
The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the Forest unit.

3. Forest Management Planning
The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the Forest, the values and benefits to be obtained from the Forest, the desired condition of the Forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

4. Plan Implementation
Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

5. System Support
System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

6. Monitoring
The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

7. Achievement of the Management Objectives and Forest Sustainability
Periodic assessments of the management of the Forest unit operations and the Forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

8. Contractual Compliance
The licence must comply with the specific requirements of the SFL.

Appendix D: List of Acronyms

AFFM	Aviation and Forest Fire Management
AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B.Sc.F	Bachelor of Science in Forestry
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advance Growth
Class EA	Class Environmental Assessment for Timber Management on Crown Lands in Ontario
CLFN	Constance Lake First Nation
CT	Commercial thinning
EA	Environmental assessment
FIM	Forest Information Manual
FERIC	Forest Engineering Research Institute of Canada
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOIP	Forest Operations Inspections Program
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
GIS	Geographic Information System
GPS	Global Positioning System
GST	Group Seed Tree
ha	Hectares
HFMI	Hearst Forest Management Inc.
HPCH	High Potential Cultural Heritage
km	kilometres
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
ISO	International Standards Organization
LCC	Local Citizens Committee
LIDAR	Light Detection and Ranging
LTMD	Long Term Management Direction
LWI	Longlac Wood Industries
m^3	cubic meters
MNR	Ontario Ministry of Natural Resources
MOA	Memorandum of Agreement
MW1	Mixedwood 1 forest unit
MW2	Mixedwood 2 forest unit
NDPEG	Natural Disturbance Pattern Emulation Guide
NRVIS	Natural Resource Values Information System
OSB	Oriented Strand Board
PO1	Poplar 1 forest unit
PO3	Poplar 3 forest unit
RPF	Registered Professional Forester
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
SAP	Supplementary Aerial Photography

SB1	Spruce 1 forest unit
SB3	Black Spruce 3 forest unit
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rules
SP1	Spruce Pine forest unit
TOR	Terms of Reference

Appendix E Summary of Input to the Audit Process

General Public/Other Stakeholders

Three approaches (in addition to interviewing LCC members) were used to encourage the public to provide input into the audit: 1) a sample of approximately 350 individuals/ organizations on the MNR's FMP mailing list were sent a brief questionnaire asking for their views on the management of the Forest; 2) advertisements were placed in local newspapers (three local newspapers and one broader First-Nations newspaper) soliciting input; and 3) an advertisement was placed on the community television station in Hearst.

In response to these initiatives, we received twelve responses. Seven of the responses expressed general satisfaction with the manner in which the Forest was being managed. The remaining five responses expressed concerns on the following topics: impacts of clearcutting on wildlife in general; impacts of clearcutting on trap lines; concerns regarding the use of herbicides; concerns that access to the Forest remain unrestricted; concerns regarding slash piles and the utilization of wood in the piles, and deteriorating fishing quality because of access provided by roads. All of these concerns were considered by the audit team in this review.

Local Citizens' Committee

During the course of the audit, ten LCC members were interviewed. Interviews were conducted in-person and over the telephone. The consensus amongst the LCC members is that the committee achieved its purpose, although some members were not familiar with the Terms of Reference of the Committee. Some Committee members expressed concern that the number of meetings was too low during the past two years.

As noted above (Section 3.2.1) some members also commented on the fact that the topics of interest to the MNR and the forest industry dominate the agenda, whereas issues of concern to some LCC members are dealt with less thoroughly. In spite of this, committee members felt comfortable raising points and acknowledged that the committee attempted to function in a very open manner and foster a highly congenial atmosphere.

Some committee members noted that the body needed more structure (i.e. a formal chair and other positions). All members interviewed felt well-served by the MNR.

Native Communities

Discussions regarding forest management with local First Nations focussed on the Constance Lake First Nation. Representatives from the Hornepayne First Nation did not respond to the Audit Team's numerous attempts to initiate discussions. The key topics raised by Constance Lake First Nations representatives included:

- General levels of satisfaction with the consultation efforts undertaken by the MNR and Company;
- The role and success of the community-based liaison officer;
- Concerns regarding the effects of harvesting on the Forest, particular on

furbearers and trapping;
- The success of, and further opportunities for Amik logging;
- Representation of First Nations on the forest management planning team; and
- Efforts related to values collection.

SFL Holder

Numerous discussions were held with staff of HFMI Inc prior to, during, and following the site visit week. Main discussion topics included:

- The difficulties associated with poplar management and the challenges of working with the present SFL commitments
- The challenges associated with the current poor economic state of the forest sector;
- Efforts related to fostering First Nations economic interests;
- The profile of the Company in the Community
- Loss of productive land due to slash piles and road rights-of-way
- The succession rules used in the SFMM model;
- The natural disturbance rates used in the SFMM model;
- The company's efforts at identifying appropriate natural disturbance benchmarks;
- Caribou habitat management;
- Timing of payments associated with the Forest Renewal Trust Fund
- Difficulties associated with conducting prescribed burns;
- Details associated with planning requirements;
- The difficulties associated with poplar management and the challenges of working with the present SFL commitments;
- Maintenance of access roads and bridges;
- Mixedwood management; and
- Discrepancies between planned and actual harvest levels

Other topics related to the above were also discussed with the Company throughout the audit process.

Ministry of Natural Resources

Discussions with District, Regional, and Forest Management Branch MNR staff included the following topics:

- Level of compliance inspections undertaken and the difficulties associated with staffing the compliance position;
- The functioning of the LCC;
- The range of AOCs used on the Forest;
- The sufficiency of values surveys undertaken on the Forest;
- The efforts of the MNR associated with facilitating First Nations interests on the Forest;
- Access management on the Forest;
- Caribou management on the Forest;
- Difficulties associated with conducting prescribed burns;

- Details associated with planning requirements; and
- The implementation of the RSA process;

Other topics related to the above were also discussed with the MNR throughout the audit process.

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